VOLUME 10 PART 2

NORTH AMERICAN FLORA

(AGARICALES)

AGARICACEAE (pars)

AGARICEAE (pars)

WILLIAM ALPHONSO MURRILL

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ANNOUNCEMENT

NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Myxomycetes, Schizophyta, Diatomaceae.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 34. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. W. A. Murrill, and Dr. J. H. Barnhart.

Professor George F. Atkinson, of Cornell University; Professor John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Byron D. Halsted, of Rutgers College; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or five parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN
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Amanita elliptosperma Atk. Ann. Myc. **7**: 336. 1909. Described from Chapel Hill, North Carolina. Resembling white forms of *Venenarius phalloides*, but said to have ellipsoid spores.

Amanita elongata Peck, Bull. N. Y. State Mus. 131: 33. 1909. Described from specimens collected by Sterling in Pennsylvania, July, 1907, on damp grassy ground in the borders of woods. Resembling *Vaginata albocreata*, but having a well-developed annulus. From yellow forms of *Venenarius phalloides*, it differs in its very long, slender stipe and the absence of a free limb to the volva. In color and general appearance, except the long stipe, it greatly resembles *Venenarius Frostianus*. Further field studies are highly desirable.

Lepiota gemmata Morgan, Jour. Myc. **12**: 202. 1906. Collected near Preston, Ohio, on rich soil or rotten wood. Probably a form of *Venenarius solitarius*.

Amanita junquillea Quél. Bull. Soc. Bot. Fr. **23**: 324. *pl. 3, f. 10.* 1876. Held by some to be equivalent to *Venenarius russuloides*, but there seems to be little foundation for this opinion.

Amanita magnivelaris Peck, Ann. Rep. N. Y. State Mus. **50**: 96. 1898. Described from Port Jefferson, New York, and said by the author to differ from *Amanita verna* in its large, persistent annulus; its elongate, downwardly tapering bulb; and especially in its ellipsoid spores.

Amanita mappa Fries, Epicr. Myc. 6. 1838.

Agaricus pantherinus DC. Fl. Fr. **6**: 52. 1815. *Venenarius pantherinus* Murrill, Mycologia **5**: 80. 1913. Described from France, and found in woods and groves throughout Europe and parts of Asia. I have been unable to find any typical specimens from this country. In the case of *V. phalloides*, we have white and dark forms abundantly represented, and it would seem natural to expect the dark forms of *V. pantherinus* also if the species occurs here. Beardslee has studied *V. cothurnatus* in North Carolina and *V. pantherinus* in Sweden, and he believes the two to be identical. He found the spores of both species to be globose in fresh specimens, changing to ellipsoid after the dried plants were kept for several weeks. *Amanita umbrina* Pers. Syn. Fung. 254. 1801 refers to the usual dark European form of this species. DeCandolle evidently did not use Persoon's name in *Agaricus* because it was preoccupied in that genus.

Amanita submaculata Peck, Bull. Torrey Club **27**: 609. 1900. Known only from a single specimen, accompanied by a sketch, sent to Dr. Peck from North Carolina by Miss Wilson, who, pronouncing it edible, must have collected more than one hymenophore. If it had not been pronounced edible, I should be inclined to classify it as a dark-centered form of *Venenarius phalloides*, in which most of the volva had been carried up on the surface of the cap. The type is sterile, and further field study of the plant is highly desirable.

Agaricus virosus Fries, Epicr. Myc. 6. 1838. This species has often been confused with white forms of *Venenarius phalloides*, from which it is said to differ in its strong odor and rough stipe.

Subtribe 2. **PLUTEANAE***

Pileus irregular, dimidiate or resupinate. — 52. CLAUDOPUS.
Pileus regular, sometimes eccentric in *Pleuropus*.
  Volva and annulus wanting.
    Stipe cartilaginous.
      Margin of pileus incurved when young.
        Lamellae decurrent. — 53. ECCILIA.
        Lamellae adnate or adnexed. — 54. LEPTONIELLA.
      Margin of pileus straight and appressed when young; lamellae free or adnexed. — 55. NOLANEA.
    Stipe fleshy.
      Lamellae decurrent, rarely varying to adnate. — 56. PLEUROPUS.
      Lamellae sinuate or adnexed.
        Spores not angular, rosy-ochraceous in mass. — 57. LEPISTA.
        Spores angular, rose-colored in mass. — 58. ENTOLOMA.
      Lamellae free. — 59. PLUTEUS.
  Volva wanting, annulus present. — 60. CHAMAEOTA.
  Volva present, annulus wanting. — 61. VOLVARIOPSIS.

*See N. AM. FLORA **9**: 237 for a key to the four subtribes of the Agariceae. The Pluteanae are distinguished by their spores, which are rosy or rosy-ochraceous in mass and often angular in outline.

52. CLAUDOPUS (W. G. Smith) Gill. Champ. Fr. 426. 1876.

Agaricus § *Claudopus* W. G. Smith, Clavis Agar. 17. 1870.
Dochmiopus Pat. Hymén. Eur. 113. 1887.
Octojuga Fayod, Ann. Sci. Nat. VII. 9: 390. 1889.

Pileus fleshy, putrescent, irregular, dimidiate or resupinate; spores pink or salmon-colored; stipe lateral or wanting, rarely eccentric; veil none.

Type species, *Claudopus variabilis* (Pers.) Gill.

Pileus pure-white, unchanging with age.
- Pileus 1–4 mm. broad. — 1. *C. subdepluens.*
- Pileus 1–2.5 cm. broad. — 2. *C. multiformis.*

Pileus white or whitish, becoming pinkish or grayish, 1–2.5 cm. broad. — 3. *C. depluens.*

Pileus greenish-white when young, dull-white or yellowish-white when old, 2.5–5 cm. broad. — 4. *C. mephiticus.*

Pileus bright-yellow or bright-tawny-orange.
- Pileus reaching 2 cm. broad; spores globose. — 5. *C. subnidulans.*
- Pileus reaching 5 cm. broad; spores curved-rod-shaped. — 6. *C. nidulans.*

Pileus gray, grayish-cinnamon, avellaneous, or brown.
- Pileus pale-avellaneous; stipe grayish, 5 mm. long. — 7. *C. avellaneus.*
- Pileus differently colored; stipe shorter.
  - Pileus grayish-cinnamon. — 8. *C. greigensis.*
  - Pileus grayish-brown. — 9. *C. byssoideus.*

1. Claudopus subdepluens M. Fitzpatrick, Mycologia 7: 37. 1915.

Pileus convex to expanded, minute, 1–4 mm. broad; surface white, minutely tomentose, margin sulcate; lamellae at first white, becoming salmon-colored, distant, adnate, entire on the edges; spores angular, uniguttulate, rarely 2-guttulate, rose-colored, 7–12 × 6–8 μ; stipe white, lateral, flexible, about 2 mm. long, not more than 0.5 mm. thick.

TYPE LOCALITY: Six Mile Gorge, Ithaca, New York.
HABITAT: Parasitic on *Coltricia perennis*.
DISTRIBUTION: Known only from the type locality.

2. Claudopus multiformis Murrill.

Agaricus variabilis Pers. Obs. Myc. 2: 46. 1799. Not *A. variabilis* Batsch, 1783.
Claudopus variabilis Gill. Champ. Fr. 426. 1876.

Pileus fleshy, resupinate to reflexed, 1–2.5 cm. broad; surface white, smooth, tomentose; lamellae distant, broad, white to red; spores ellipsoid, pale-red, 6–7 × 2.5–4 μ; stipe eccentric or wanting, short, incurved, villose.

TYPE LOCALITY: Europe.
HABITAT: On decayed wood, usually spruce.
DISTRIBUTION: Massachusetts and North Carolina; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 344a (371);* Gill. Champ. Fr. *pl. 286 (95);* Hussey, Ill. Brit. Myc. 1: *pl. 50;* Pat. Tab. Fung. 1: *f. 225, 226;* Pers. Obs. Myc. 2: *pl. 5, f. 12.*
EXSICCATI: Romell, Fungi Scand. *108* (as *C. sessilis*); Roum. Fungi Gall. *2606;* Thüm. Myc. Univ. *401;* Westend. & Wall. Herb. Crypt. *1283.*

3. Claudopus depluens (Batsch) Gill. Champ. Fr. 427. 1876.

Agaricus depluens Batsch, Elench. Fung. Contin. 1: 167. 1786.
Agaricus epigaeus Pers. Obs. Myc. 2: 47. 1799.

Pileus thin, at first resupinate, becoming reflexed, variable in form, sessile or with a short stipe, 1–2.5 cm. broad; surface slightly silky-tomentose, especially toward the base, white or whitish, becoming pink or sometimes tinged with red or gray; lamellae broad, subdistant, whitish, becoming pink; spores angular, usually containing a single large nucleus, 10–11 × 7.5 μ.

TYPE LOCALITY: Bavaria.
HABITAT: On moist shaded ground or among mosses, sometimes on dead wood or sawdust.
DISTRIBUTION: New York to South Carolina in the eastern United States; also in Europe.
ILLUSTRATIONS: Batsch, Elench. Fung. *f. 122;* Cooke, Brit. Fungi *pl. 344b (371);* Pat. Tab. Fung. *f. 431.*
EXSICCATI: Sydow, Myc. Mar. *4002.*

4. Claudopus mephiticus Murrill, Mycologia 7: 290. 1915.

Pileus eccentric, convex to nearly plane, somewhat depressed at the center, cespitose, 2.5–5 cm. broad; surface dry, glabrous, slightly concentrically sulcate, greenish-white when

young, dull-white or yellowish-white when old, margin concolorous, undulate; context white, with a very decided mephitic or garlic odor and taste; lamellae sinuate, subdistant, broad, slightly serrate on the edges, white, becoming rose-colored at maturity; spores angular, rose-colored, uniguttulate, 9 × 7 μ; stipe short, subcylindric, very eccentric, solid, pruinose, white, 1–1.5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Minnehaha Park, Minneapolis, Minnesota.
HABITAT: On fallen dead branches.
DISTRIBUTION: Known only from the type locality.

5. **Claudopus subnidulans** Overholts, Ann. Mo. Bot. Gard. **3**: 195. 1916.

Pileus sessile, reniform or dimidiate in outline, convex, 0.5–2 cm. broad; surface dry, fibrillose-tomentose, bright-tawny-orange, margin inrolled, even or slightly striate; context thin, white, the odor and taste none; lamellae radiating from the point of attachment to the pileus, of medium distance, rather broad, 3–5 mm., salmon-colored or dull-orange; spores globose, smooth salmon-colored, 5–7 μ; stipe none, the pileus attached by a white, tomentose base.

TYPE LOCALITY: Jefferson Barracks, near St. Louis, Missouri.
HABITAT: On rotten logs in damp woods.
DISTRIBUTION: Known only from the type locality.

6. **Claudopus nidulans** (Pers.) P. Karst. Bidr. Finl. Nat. Folk **32**: 288. 1879.

Agaricus nidulans Pers. Ic. Descr. Fung. 19. 1798.
Agaricus dorsalis Bosc, Ges. Nat. Freunde Berlin Mag. **5**: 85. 1811.

Pileus sessile or narrowed to a very short stipe, reniform to circular, usually imbricate, reaching 5 cm. or more broad; surface dry, tomentose or somewhat hirsute, bright-yellow, margin involute; context slightly tough; spores minute and very peculiar, resembling some bacteria, curved-rod-shaped, smooth, rose-colored in mass, 3–5 × 1 μ.

TYPE LOCALITY: Europe.
HABITAT: On decaying wood of both deciduous and coniferous trees.
DISTRIBUTION: Canada to Florida and west to Oregon; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 141;* ed. 2. *f. 144;* Ges. Nat. Freunde Berlin Mag. **5**: *pl. 4;* Mycologia **6**: *pl. 113, f. 6;* Pers. Ic. Descr. Fung. *pl. 6, f. 4.*
EXSICCATI: Ellis, N. Am. Fungi *913* (as *Panus dorsalis*); Rav. Fungi Am. *103;* Rav. Fungi Car. **1**: *5* (as *Panus foetens*); **2**: *13;* Roum. Fungi Sel. *6769.*

7. **Claudopus avellaneus** Murrill, sp. nov.

Pileus thin, very eccentric, convex, depressed behind, gregarious, 1 cm. broad; surface smooth, finely tomentose, pale-avellaneous, margin very thin, concolorous, inflexed; lamellae adnate, broad, distant, white to salmon-colored, entire and concolorous on the edges; spores ovoid, irregular, angular, apiculate, uniguttulate, rose-colored, 8–10 × 5–6 μ; stipe short, much enlarged above, smooth, grayish, densely tomentose, about 5 mm. long, 1–2 mm. thick.

Type collected on dead wood at Glen Brook, Oregon, November 7, 1911, *W. A. Murrill 779* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. **Claudopus greigensis** (Peck) Sacc. Syll. Fung. **5**: 735. 1887.

Agaricus greigensis Peck, Ann. Rep. N. Y. State Mus. **24**: 69. 1872.

Pileus very thin, convex, 1–2 cm. broad; surface hygrophanous, grayish-cinnamon and striatulate when moist, silky-fibrillose when dry; lamellae subdistant, scarcely reaching the stipe, grayish, becoming dingy-pink; spores angular, usually containing a single large nucleus, 8.5–11 × 7.5 μ; stipe short, solid, curved, fibrillose below, with an abundant white, radiating mycelium at the base, about 2 mm. long.

TYPE LOCALITY: Greig, New York.
HABITAT: On much decayed wood.
DISTRIBUTION: New York.

9. **Claudopus byssoideus** (Pers.) Murrill.

Agaricus byssoideus Pers. Ic. Descr. Fung. 56. 1800.
Agaricus byssisedus Pers. Syn. Fung. 482. 1801.
Claudopus byssisedus Gill. Champ. Fr. 427. 1876.

Pileus very thin, at first resupinate, becoming reflexed, nearly plane, 1–2 cm. broad; surface glabrous or merely pruinose with a slight grayish villosity, gray, grayish-brown, or brown; lamellae rather broad, subdecurrent, grayish, becoming tinged with pink; spores angular, 10–11 x 7.5 μ; stipe short, lateral or eccentric, generally curved, with white, radiating, byssoid fibrils at the base.

TYPE LOCALITY: Europe.
HABITAT: On decaying wood.
DISTRIBUTION: New York and Pennsylvania; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 344c (371)*; Pat. Tab. Fung. *f. 432*; Pers. Ic. Descr. Fung. *pl. 14, f. 4.*
EXSICCATI: Sydow, Myc. Mar. *2301.*

53. **ECCILIA** (Fries) Quél. Champ. Jura Vosg. 90. 1872.

Agaricus § *Eccilia* Fries, Syst. Myc. **1**: 207. 1821.
Hyporhodius Schroet. Krypt.-Fl. Schles. **3**[1]: 613. 1889.

Pileus thin, fleshy, putrescent, the margin at first incurved; lamellae decurrent; spores pink or salmon-colored, usually angular; stipe central, slender, tubular, with cartilaginous cortex; veil none.

Type species, *Eccilia atrides* (Lasch) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus white.
  Stipe 2.5–3.5 cm. long. — 1. *E. nivea.*
  Stipe 4–6 cm. long. — 2. *E. roseoalbocitrina.*
Pileus yellowish-white. — 3. *E. cinericola.*
Pileus pale-yellow. — 4. *E. flavida.*
Pileus isabelline or yellowish-brown, 1–2.5 cm. broad.
  Lamellae narrow. — 5. *E. angustifolia.*
  Lamellae broad.
    Pileus dark-isabelline, pale-chestnut on drying. — 6. *E. tenuipes.*
    Pileus yellowish-brown, brownish-orange on drying. — 7. *E. unicolor.*
Pileus dull-reddish-brown, 2–5 cm. broad. — 8. *E. mordax.*
Pileus mouse-colored.
  Stipe 2–3 cm. long. — 9. *E. pentagonospora.*
  Stipe 3–5 cm. long. — 10. *E. rhodocylicioides.*
Pileus grayish-brown or avellaneous.
  Pileus 1 cm. broad. — 11. *E. parvula.*
  Pileus 4–6 cm. broad. — 12. *E. pungens.*
Pileus dark-brown or blackish.
  Stipe green. — 13. *E. Housei.*
  Stipe brownish or blackish.
    Lamellae blackish on the edges.
      Pileus 2–2.5 cm. broad; stipe 2 mm. or less thick. — 14. *E. fuliginosa.*
      Pileus 2.5–3.5 cm. broad; stipe 2–4 mm. thick. — 15. *E. atrides.*
    Lamellae not blackish on the edges.
      Stipe 1–2 mm. thick.
        Stipe 2.5 cm. long. — 16. *E. Watsoni.*
        Stipe 3.5–5 cm. long. — 17. *E. sphagnophila.*
      Stipe 5–6 mm. thick. — 18. *E. pyrina.*

II. SPECIES CONFINED TO THE PACIFIC COAST

Stipe 1.5–3 cm. long; pileus grayish-brown or blackish.
  Pileus grayish-brown, reaching 2.5 cm. broad. — 19. *E. californica.*
  Pileus grayish-black, reaching 3.5 cm. broad. — 20. *E. nigricans.*
Stipe 4–6 cm. long; pileus dark-lavender. — 21. *E. Yatesii.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus tan-colored.
  Pileus 1 cm. broad; stipe 2 cm. long. — 22. *E. cubensis.*
  Pileus 2 cm. broad; stipe 4 cm. long. — 23. *E. Earlei.*
Pileus pale-blue. — 24. *E. mexicana.*
Pileus blackish. — 25. *E. jamaicensis.*

1. **Eccilia nivea** Peck, Ann. Rep. N. Y. State Mus. **49**: 18. 1897.

Eccilia subacus Peck, Bull. Torrey Club **34**: 100. 1907.

Pileus thin, submembranous, hemispheric or very convex, slightly umbilicate, 1–2.5 cm. broad; surface smooth, finely appressed-fibrillose, white; lamellae thin, rather broad, distant, arcuate, short-decurrent, white, becoming salmon-colored; spores ellipsoid, angular, uniguttulate, rose-colored, 10–12 × 6–8 μ; stipe slender, fragile, equal or slightly tapering upward, glabrous, stuffed or hollow, white, 2–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Selkirk, New York.
HABITAT: On the ground in woods or thickets.
DISTRIBUTION: New England and New York.

2. **Eccilia roseoalbocitrina** Atk. Ann. Myc. **7**: 369. 1909.

Pileus strongly convex when young, slightly depressed at the center, becoming expanded with the margin strongly upturned with age, thin, 1–2.5 cm. broad; surface minutely silky with loose, delicate threads, smooth, entirely white, sometimes faintly tinged with yellow at the center; lamellae at first white, then pale-rose-colored or becoming buff on drying, adnate or decurrent, subdistant, slightly ventricose; spores elongate, angular, pale-flesh-colored, 9–11 × 6–9 μ; stipe smooth, hollow, cartilaginous, covered with a delicate, white, velvety tomentum when young, the apex mealy, with tufts of clavate cells when old, 4–6 cm. long, 2–3.5 mm. thick.

TYPE LOCALITY: Cayuga Lake, Ithaca, New York.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

3. **Eccilia cinericola** Peck, Bull. Torrey Club **34**: 347. 1907.

Pileus thin, fragile, broadly convex, becoming expanded and broadly umbilicate or centrally depressed, 1.2–2.5 cm. broad; surface glabrous, slightly scabrous, white tinged with yellow, becoming cream-colored with age; lamellae thick, distant, broad, adnate or slightly decurrent, sometimes slightly sinuate, white, becoming pink, dusted with the spores; spores subglobose, angular, 10–12 × 8–10 μ; stipe subcartilaginous, fragile, hollow, slightly enlarged at the apex, white at first, becoming colored like the pileus, 2–2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Boston, Massachusetts.
HABITAT: Gravelly ground among grasses, especially where coal ashes have been lying for a long time.
DISTRIBUTION: Known only from the type locality.

4. **Eccilia flavida** Peck, Bull. Torrey Club **36**: 153. 1909.

Pileus thin, convex, umbilicate, 2–2.5 cm. broad; surface glabrous, pale-yellow, obscurely striate when dry; lamellae thin, somewhat crowded, decurrent; spores subglobose, angular, 8–12 × 6–8 μ; stipe slender, glabrous, hollow, concolorous or a little paler, commonly with white mycelium at the base, 2.5–3.5 cm. long, 1.5–2 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
DISTRIBUTION: Vicinity of Stow, Massachusetts.

5. **Eccilia angustifolia** Murrill, sp. nov.

Pileus thin, regular, convex-umbilicate, not expanding, solitary, 1.5–2 cm. broad; surface glabrous, uniformly tan-colored, pale-chestnut in dried specimen, striate, margin entire, concolorous; lamellae short-decurrent, subdistant, narrow, several times inserted, white to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, angular, obliquely apiculate, rose-colored, 10.5 × 9 μ; stipe long, slender, equal, smooth, glabrous, solid, pale-fuliginous, 4–5 cm. long, reaching 2 mm. thick.

Type collected on the ground in moss at West Park, New York, August 9, 1903, *F. S. Earle 1832* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

6. **Eccilia tenuipes** Murrill, sp. nov.

Pileus convex-umbilicate, regular in shape, gregarious, 1.5 cm. broad; surface glabrous, tan-colored, pale-chestnut in dried specimens, margin concolorous, entire, deeply striate; lamellae rather broad, subcrowded, decurrent, pallid to salmon-colored, concolorous and entire on the edges; spores ellipsoid, angular, obliquely apiculate, rose-colored, 10–12.5 × 6–8 μ; stipe long and slender, tubular, equal, smooth, glabrous, concolorous, 6 cm. long, 1 mm. thick.

Type collected on the ground in oak woods at Bound Brook, New Jersey, July 6, 1903, *F. S. Earle 1466* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

7. **Eccilia unicolor** Peck, Bull. Torrey Club **34**: 99. 1907.

Pileus thin, submembranous, conic or very convex, becoming expanded, umbilicate, 1–2.5 cm. broad; surface glabrous, silky, shining, hygrophanous, yellowish-brown and striatulate on the margin when moist, becoming paler or brownish-orange on drying; lamellae unequal, thin, narrow, crowded, arcuate, decurrent, sometimes serrate on the edges, concolorous; spores angular, uniguttulate, 8–12 × 6–8 μ; stipe externally cartilaginous, straight or flexuous, glabrous, shining, stuffed, pruinose at the apex, concolorous or a little paler, with a whitish, mycelioid tomentum at the base, 3–6 cm. long, 1–3 mm. thick.

TYPE LOCALITY: Falmouth, Massachusetts.
HABITAT: Gravelly soil in waste places.
DISTRIBUTION: Known only from the type locality.

8. **Eccilia mordax** Atk. Jour. Myc. **8**: 113. 1902.

Pileus convex, umbilicate, usually gregarious, 2–5 cm. broad; surface smooth, dull-reddish-brown or pale-chestnut-colored, hygrophanous, tough, rarely cracking radially, margin inrolled; context thin, dirty-white, the taste at first not marked, but after 15 or 20 minutes leaving a burning sensation in the throat which often lasts 24 hours; lamellae dirty-flesh-colored, adnate to slightly decurrent, not crowded; spores ovoid, pale-flesh-colored, 6–7 × 4–5 μ; stipe concolorous, cartilaginous, tough, fistulose, smooth, often compressed, 5–7 cm. long, 3–5 mm. thick.

TYPE LOCALITY: McGowan's woods, Ithaca, New York.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

9. **Eccilia pentagonospora** Atk. Jour. Myc. **8**: 113. 1902.

Pileus umbilicate to infundibuliform, very thin, gregarious, 0.5–1.5 cm. broad; surface fibrous-striate, smooth or very minutely roughened, mouse-gray to light-gray; lamellae decurrent, ascending, not very crowded, flesh-colored, 2–4 mm. broad; spores pink, subquadrate, prominently 4–5-angled, usually 5-angled, 6–10 μ in diameter; stipe concolorous, white within, cylindric, even, solid, sometimes with delicate white threads at the base, 2–3 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On a lawn.
DISTRIBUTION: Known only from the type locality.

10. **Eccilia rhodocylicioides** Atk. Jour. Myc. **8**: 113. 1902.

Pileus small, convex, umbilicate, gregarious or slightly cespitose, 5–12 mm. broad; surface mouse-colored, finely floccose-scaly at the center, margin faintly striate, thin; lamellae arcuate, distant, decurrent, bristling with white cystidia under a lens, slightly paler than the pileus and tinged with flesh-color; spores quadrate to subquadrate, 8–10 μ; stipe cartilaginous, hollow, concolorous except at the apex. where it is paler, 3–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: McGowan's woods, Ithaca, New York.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

11. **Eccilia parvula** Murrill, sp. nov.

Pileus thin, umbilicate-expanded, solitary, 1 cm. broad; surface dry, densely fibrillose, uniformly grayish-brown, margin incurved, concolorous, not striate; lamellae conspicuously

decurrent, very distant, rather broad, thin, pallid to salmon-colored, undulate and concolorous on the edges; spores subglobose, angular, apiculate, rose-colored, 7–9 μ; stipe tapering downward, subconcolorous, darker below, glabrous, smooth, 1.5 cm. long, 2 mm. thick.

Type collected on the ground in woods in the New York Botanical Garden, July 8, 1902, *F. S. Earle 318* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

12. **Eccilia pungens** Murrill, sp. nov.

Pileus convex, not fully expanding, deeply umbilicate, gregarious, 4–6 cm. broad; surface smooth, glabrous, hygrophanous, avellaneous, somewhat striate with darker lines, margin incurved, concolorous, at first entire, becoming conspicuously lobed or plicate with age; context thin, pallid, with a sweetish, pungent taste and a distinct odor of chloride of lime; lamellae short-decurrent, subdistant, arcuate or plane, many times inserted, white to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, angular, apiculate, uniguttulate, rose-colored, 8–10 × 7 μ; stipe equal, compressed, solid, smooth, glabrous, subconcolorous, 4–5 cm. long, 4–5 mm. thick.

Type collected in soil in damp deciduous woods in the New York Botanical Garden, August 10, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

13. **Eccilia Housei** Murrill, sp. nov.

Leptonia euchlora House, Bull. N. Y. State Mus. 188: 33. 1917. Not *L. euchlora* Quél. 1872.

Pileus submembranous, campanulate, becoming deeply depressed at the center, cespitose, about 2 cm. broad; surface blackish with a fumosous tint, radiately furrowed and streaked with paler tints, minutely tawny-fibrillose and roughened but scarcely squamulose, margin somewhat irregular; context very thin, pallid; lamellae narrow, decurrent, rather distant, pallid or slightly yellowish when young, soon becoming salmon-colored; spores ellipsoid, angular, obliquely apiculate, rose-colored, 9–11 × 6–7 μ; stipe slender, hollow, grass-green, slightly fibrillose, 2–4 cm. long, 2–3 mm. thick.

Type collected in damp clay soil in deciduous thickets at Green Lake near Kirkville, Onondaga County, New York, June 6, 1914, *H. D. House 14.16* (herb. N. Y. State Mus.).

DISTRIBUTION: Northern New York.

14. **Eccilia fuliginosa** Murrill, sp. nov.

Pileus thin, convex-umbilicate, not expanding, gregarious, 2–2.5 cm. broad; surface squamulose, fuliginous, striate, the disk more densely squamulose and nearly black in dried specimens, margin entire, concolorous, incurved; lamellae short-decurrent, subdistant, rather broad, several times inserted, pallid to salmon-colored, fuliginous and floccose on the edges; spores ellipsoid, angular, apiculate, 8–10 × 6–7 μ; stipe long and slender, cylindric, glabrous, concolorous, solid, 4–6 cm. long, reaching 2 mm. thick.

Type collected on the ground in wet woods at West Park, New York, August 9, 1903, *F. S. Earle 1838* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

15. **Eccilia atrides** (Lasch) Quél. Champ. Jura Vosg. 90. 1872.

Agaricus atrides Lasch, Linnaea 4: 539. 1829.

Pileus subfleshy-membranous, hemispheric to convex, becoming plane, deeply umbilicate, subgregarious, 2.5–3 cm. broad; surface substriate, silky-shining, black or gray, darker and squamulose toward the disk, margin striate; lamellae attenuate, subdecurrent, thin, at length denticulate, subcrowded, pallid, black on the edges; spores broadly ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 8–10 × 7–8 μ; stipe subequal, hollow, subconcolorous, finely black-punctate, especially at the apex, fibrillose at the base, 5–7 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Germany.

HABITAT: In moist, shady places among mosses or ferns, sometimes on dead wood.

DISTRIBUTION: New England to North Carolina and west to Michigan; also in Europe.

ILLUSTRATION: Quél. Champ. Jura Vosg. *pl. 6, f. 3.*

16. **Eccilia Watsoni** (Peck) Sacc. Syll. Fung. 5: 732. 1887.

Agaricus Watsoni Peck, Ann. Rep. N. Y. State Mus. 28: 48. 1876.

Pileus hemispheric or convex, umbilicate, 1–2 cm. broad; surface striatulate, brown, darker and rough with minute blackish-brown scales on the umbilicus; lamellae distant, arcuate, decurrent, whitish, becoming flesh-colored; spores angular, generally uninucleate, 8.5–10 μ in diameter; stipe equal, smooth, shining, brownish or pallid, 2.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Northampton, Fulton County, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and Massachusetts.

17. **Eccilia sphagnophila** Peck, Ann. Rep. N. Y. State Mus. 54: 147. 1901.

Pileus hemispheric or umbonate-turbinate, 8–16 mm. broad; surface glabrous, dark-brown, striate on the margin; lamellae broad, distant, very decurrent, whitish, becoming slightly tinged with pink; spores angular, 7.5–12.5 × 6–7.5 μ; stipe slender, glabrous, concolorous, 3.5–5 cm. long, 1 mm. thick.

TYPE LOCALITY: Floodwood, New York.
HABITAT: In marshes among sphagnum.
DISTRIBUTION: New York.
ILLUSTRATION: Ann. Rep. N. Y. State Mus. 54: *pl. I, f. 20–23.*

18. **Eccilia pyrina** (Berk. & Curt.) Sacc. Syll. Fung. 5: 732. 1887.

Agaricus pyrinus Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 291. 1859.

Pileus at first broadly convex, expanding, umbilicate, 2.5 cm. broad; surface dark-brown at the center, gray at the crenate margin; context with the odor of ripe pears; lamellae slightly decurrent, whitish; spores irregular, angular; stipe hollow, at length compressed, 4 cm. long, 5–6 mm. thick.

TYPE LOCALITY: Massachusetts.
HABITAT: In swamps.
DISTRIBUTION: Massachusetts.

19. **Eccilia californica** Murrill, sp. nov.

Pileus convex-umbilicate, not expanding, regular, thin, gregarious, 1.5–2.5 cm. broad; surface dry, smooth, glabrous, uniformly grayish-brown, margin entire, concolorous, inflexed; context grayish-brown, with nutty taste; lamellae decurrent, inserted, broad, crowded, white to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, angular, uniguttulate, rose-colored, 8–9 × 7 μ; stipe short, equal or slightly enlarged above, solid, smooth, glabrous, grayish-brown, 1.5–3 cm. long, 1–2 mm. thick.

Type collected among grass in rich ground at Madera Creek, near Stanford University, California, December 21, 1902, *James McMurphy 53* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

20. **Eccilia nigricans** Peck, Bull. Torrey Club 22: 201. 1895.

Pileus thin, convex, umbilicate or centrally depressed, 1.5–3.5 cm. broad; surface subzonate, unpolished, finely tomentose, grayish-black; context with the odor and taste of butternuts; lamellae broad, distant, decurrent, light-drab or brownish, becoming tinged with flesh-color; spores angular, uninucleate, 10 μ long and nearly as broad; stipe short, hollow, grayish-black, usually with abundant white mycelium, about 2.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: On grassy ground.
DISTRIBUTION: Southern California.

21. **Eccilia Yatesii** Murrill, sp. nov.

Pileus convex-umbilicate, not expanding, solitary, 2–5 cm. broad; surface smooth, glabrous, uniformly dark-lavender, margin entire, concolorous, inflexed; context white; lamellae de-

current, broad, arcuate, distant, pallid to salmon-colored, entire and concolorous on the edges; spores ellipsoid, angular, apiculate, uniguttulate, rose-colored, 8–10 × 7 μ; stipe equal, smooth, glabrous, hollow, pale-lavender, 4–6 cm. long, 2–5 mm. thick.

Type collected on the ground under redwoods in Muir Woods, near San Francisco, California, January 5, 1914, *H. S. Yates 97* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

22. **Eccilia cubensis** Murrill, Mycologia **3**: 273. 1911.

Pileus convex, 1 cm. broad; surface dark-tan, darker at the disk, innate-scaly, not striate; lamellae decurrent, rather distant, broad, dirty-white to slightly pinkish; spores octahedral, irregular, 7–9 μ; stipe cylindric, paler than the pileus, slightly granular-floccose, 2 cm. long, 1 mm. thick.

TYPE LOCALITY: Herradura, Cuba.
HABITAT: In a thicket on the bank of a stream.
DISTRIBUTION: Known only from the type locality.

23. **Eccilia Earlei** Murrill, Mycologia **3**: 274. 1911.

Pileus thin, convex-umbilicate, 2 cm. broad; surface pale-tan, fibrillose-scaly, margin thin, substriate; lamellae decurrent, distant, broad, subarcuate, yellow to pinkish; spores irregularly angled, 7–9 μ; stipe cylindric, hollow, glabrous, dull-yellow, 4 cm. long, 2 mm. thick.

TYPE LOCALITY: El Yunque, Cuba.
HABITAT: On a dead stick.
DISTRIBUTION: Known only from the type locality.

24. **Eccilia mexicana** Murrill, sp. nov.

Pileus convex to expanded, umbilicate, somewhat irregular, thin, solitary, 3 cm. broad; surface dry, glabrous, striate, caesious with an olivaceous tint, margin entire to lobed, lacerate with age, concolorous; lamellae decurrent, arcuate, rather narrow, crowded, white, pallid to salmon-colored, serrulate and blackish on the edges; spores subglobose, angular, uniguttulate, rose-colored, 7–9 μ; stipe subequal, tough, compressed, smooth, glabrous, paler blue than the pileus, 3.5 cm. long, 3 mm. thick.

Type collected on dead wood in woods at Jalapa, Vera Cruz, Mexico, 1,500 m. elevation, December 12–20, 1909, *W. A. & Edna L. Murrill 77* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

25. **Eccilia jamaicensis** Murrill, Mycologia **3**: 274. 1911.

Pileus thin, convex, umbilicate, solitary, nearly 2 cm. broad; surface smooth, glabrous, blackish, margin entire, concolorous; lamellae broad, distant, decurrent, straw-yellow; spores angular, pinkish, 8–10 × 7 μ; cystidia none; stipe equal. hollow, flattened on drying, cartilaginous, glabrous, ardesiacous, 2 cm. long, 2 mm. thick.

TYPE LOCALITY: Chester Vale, Jamaica.
HABITAT: On decayed wood.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Eccilia apiculata (Fries) Gill. Champ. Fr. 425. 1876. (*Agaricus apiculatus* Fries, Epicr. Myc. 159. 1838.) Reported from Massachusetts by Davis.

Eccilia polita (Pers.) Quél. Champ. Jura Vosg. 90. 1872. (*Agaricus politus* Pers. Syn. Fung. 465. 1801. Not *A. politus* Bolt. 1783.) Reported from New York by Atkinson and from Ohio by Hard. There are no specimens so determined at Albany.

Eccilia rhodocylix (Lasch) Gill. Champ. Fr. 425. 1876. (*Agaricus rhodocylix* Lasch, Linnaea 4: 542. 1829.) Reported from New York by Peck and also from Cuba and Bermuda, but none of these specimens appear to be the true *E. rhodocylix* of Europe.

54. LEPTONIELLA Earle, Bull. N. Y. Bot. Gard. 5: 424. 1909.

Agaricus § *Leptonia* Fries, Syst. Myc. 1: 201. 1821.
Leptonia Quél. Champ. Jura Vosg. 88. 1872. Not *Leptonium* Griff. 1843.

Pileus thin, fleshy, putrescent, usually squamulose and attractively colored, the margin at first incurved; lamellae adnexed or adnate; spores pink or salmon-colored, usually angular; stipe central, slender, tubular, with cartilaginous cortex; veil none.

Type species, *Leptonia anatina* (Lasch) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus white or whitish, often darker on the disk and sometimes becoming darker on drying.
  Pileus uniformly white or whitish, not blackening on drying.
    Pileus with a small rounded umbo. — 1. *L. albida.*
    Pileus without an umbo. — 2. *L. albinella.*
  Pileus white or whitish, darker on the disk.
    Lamellae denticulate and bluish-black on the edges. — 3. *L. subserrulata.*
    Lamellae entire and pallid on the edges. — 4. *L. assularum.*
  Pileus white, becoming blackish on drying. — 5. *L. transformata.*
Pileus rosy-isabelline, not striate. — 6. *L. acericola.*
Pileus yellowish-brown, conspicuously striate. — 7. *L. Whiteae.*
Pileus roseous with brown fibrils, darker on the disk. — 8. *L. rosea.*
Pileus uniformly rosy-brown, striate, 1 cm. broad. — 9. *L. roseibrunnea.*
Pileus violet-brown, darker on the disk, 12 mm. broad. — 10. *L. parva.*
Pileus bluish-green, fading to ashy-green with age. — 11. *L. aeruginosa.*
Pileus bluish-brown; lamellae bluish-brown and entire on the edges. — 12. *L. foliomarginata.*
Pileus bluish-black, often becoming grayish-brown with age; lamellae black and serrulate on the edges. — 13. *L. columbaria.*
Pileus grayish-brown, light-brown, or avellaneous.
  Stipe greenish-blue. — 14. *L. multicolor.*
  Stipe murinous to plumbeous. — 15. *L. subplacida.*
  Stipe grayish-brown or pallid.
    Pileus 4 cm. broad; stipe 8 cm. long. — 16. *L. Earlei.*
    Pileus 1–3 cm. broad; stipe scarcely reaching 6 cm. long.
      Pileus convex or plane, not umbilicate.
        Stipe 2–3 cm. long; species occurring on decayed wood.
          Surface of pileus glabrous. — 17. *L. glabra.*
          Surface of pileus squamulose. — 18. *L. undulatella.*
        Stipe 5 cm. long; species occurring on the ground. — 19. *L. alabamensis.*
      Pileus umbilicate or depressed.
        Surface of pileus striate.
          Surface of pileus squamulose, distinctly long-striate. — 20. *L. longistriata.*
          Surface of pileus glabrous, except on the disk, not distinctly long-striate. — 21. *L. grisea.*
        Surface of pileus not striate.
          Pileus deeply umbilicate; stipe uniformly pallid. — 22. *L. umbilicata.*
          Pileus subumbilicate; stipe pale-violet-gray above and white below. — 23. *L. validipes.*
Pileus dark-brown or blackish-brown, rarely reddish-brown; varying to yellowish-brown in *L. strictipes*.
  Stipe 1–4 cm. long.
    Stipe white. — 24. *L. abnormis.*
    Stipe reddish-brown. — 25. *L. hortensis.*
    Stipe mouse-gray, becoming blackish on drying. — 26. *L. gracilipes.*
    Stipe brownish or blackish.
      Pileus walnut-brown; species occurring on decayed wood. — 27. *L. seticeps.*
      Pileus blackish-brown; species occurring in grass on lawns. — 28. *L. Davisiana.*
  Stipe 5–8 cm. long.
    Pileus hemispheric; species occurring on decayed wood. — 29. *L. semiglobata.*
    Pileus usually umbilicate; species occurring in swamps or damp places.
      Lamellae and stipe pale-lemon-yellow. — 30. *L. flavobrunnea.*
      Lamellae and stipe not as above.
        Spores ellipsoid, 10–14 × 7–9 μ. — 31. *L. strictipes.*
        Spores globose, 7–10 μ. — 32. *L. subvilis.*

II. SPECIES CONFINED TO THE PACIFIC COAST

Pileus dark-gray. — 33. *L. edulis.*
Pileus lilac-black. — 34. *L. occidentalis.*
Pileus fuliginous. — 35. *L. fuliginosa.*
Pileus black. — 36. *L. nigra.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Species occurring on decayed wood.

Pileus 2 cm. broad. 37. *L. atrosquamosa.*
Pileus 5 cm. broad. 38. *L. miniata.*
Species occurring on the ground.
Pileus pale-tan-colored. 39. *L. Earlei.*
Pileus livid-purple. 40. *L. hypoporphyra.*
Pileus murinous or avellaneous.
Stipe 4–5 cm. long. 41. *L. murina.*
Stipe 2–3 cm. long.
Pileus uniformly pale-avellaneous. 42. *L. mexicana.*
Pileus avellaneous with fuliginous disk. 43. *L. cinchonensis.*

1. **Leptoniella albida** Murrill, sp. nov.

Pileus hemispheric to convex-expanded, slightly umbilicate or depressed at the center with a little rounded umbo, reaching 2–3 cm. broad; surface finely squamulose, dull or shining, white when young, very light creamy-tan at maturity, margin typically not striate, but sometimes with low, distant ridges; context thin, soft, brittle, the taste woody and slightly bitter; lamellae more or less sinuate, sometimes slightly decurrent by a little tooth, about 5 mm. wide near the stipe, not crowded, clear-flesh-colored; spores broadly ellipsoid, irregular, decidedly angular, apiculate, rose-colored, 8–9 × 6 μ; stipe smooth, finely granular above, concolorous, tough, distinctly hollow, 3–6.5 cm. long, 1.5–2 mm. thick.

Type collected in sandy soil in deep shade at Chapel Hill, North Carolina, September 12, 1915, *W. C. Coker 1759* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

2. **Leptoniella albinella** (Peck) Murrill.

Leptonia albinella Peck, Bull. N. Y. State Mus. I^2: 6. 1888.

Pileus submembranous, subconic or convex, subumbilicate, 1.2–2.5 cm. broad; surface furfuraceous or minutely squamulose, hygrophanous, whitish and striatulate on the margin when moist, white and shining when dry; lamellae narrow, crowded, adnexed, white, becoming incarnate; spores angular, 11–12.5 × 7.5–8.5 μ; stipe equal, hollow, glabrous or slightly pruinose, whitish, 3.5–5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In bushy places.
DISTRIBUTION: Known only from the type locality.

3. **Leptoniella subserrulata** (Peck) Murrill.

Leptonia subserrulata Peck, Ann. Rep. N. Y. State Mus. 51: 288. 1898.

Pileus thin, convex or campanulate, umbilicate, 1.5–3 cm. broad; surface grayish-white, darker colored and squamulose on the umbilicus, margin obscurely striate; lamellae thin, crowded, adnate, at first white, bluish-black and minutely denticulate on the edges; spores irregular or angular, 10–11 × 7.5 μ, usually containing a single large nucleus; stipe slender, rather long, hollow, glabrous, whitish or pallid, 5–7.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Gansevoort, New York.
HABITAT: On low damp ground in woods.
DISTRIBUTION: Maine and New York.

4. **Leptoniella assularum** (Berk. & Curt.) Murrill.

Agaricus assularum Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 290. 1859.
Leptonia assularum Sacc. Syll. Fung. 5: 709. 1887.

Pileus campanulate to expanded, umbonate, 4 cm. broad; surface glabrous, virgate, white, darker on the umbo, margin striate; lamellae seceding, white to flesh-colored; spores irregular; stipe flexuous, subequal, fuliginous, 8 cm. long, 3 mm. thick.

TYPE LOCALITY: South Carolina.
HABITAT: On decayed wood.
DISTRIBUTION: South Carolina.

5. **Leptoniella transformata** (Peck) Murrill.

Leptonia transformata Peck, Bull. N. Y. State Mus. 116: 32. 1907.

Pileus thin, submembranous, slightly convex or nearly plane, often umbilicate, 1–2 cm. broad; surface silky-tomentose, dry or slightly moist in wet weather, white, becoming blackish

or blackish-brown on drying, margin striatulate, at first incurved, sometimes becoming wavy or split when old; context white, the taste farinaceous; lamellae sinuate, adnexed, crowded, unequal, ventricose, white, becoming pink; spores angular, flesh-colored, uninucleate, 10–12.5 × 7.5–8.5 μ; stipe long, slender, straight or flexuous, equal or slightly narrowed upward, pruinose at the apex, glabrous and shining at the base, subcartilaginous, stuffed or hollow, white, becoming blackish or blackish-brown on drying, with white mycelium at the base, 2.5–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Falmouth, Massachusetts.
HABITAT: In bushy places.
DISTRIBUTION: Known only from the type locality.

6. **Leptoniella acericola** Murrill, sp. nov.

Pileus convex to plane, slightly umbilicate with age, not umbonate, rather thick and firm, gregarious, reaching 5 cm. broad; surface dry, smooth, not striate, rosy-isabelline with a lilac tint, finely marked with darker fascicles of hairs, the older plants more isabelline with fuliginous disk, margin entire, concolorous, incurved when young; context with slightly farinaceous taste; lamellae adnate, ventricose, subdistant, pure-white to dull-rosy-isabelline, entire and concolorous on the edges; spores ovoid, undulate or very slightly angular in outline, usually apiculate, uniguttulate, rose-colored, 9 × 6 μ; stipe equal in mature specimens, rather short and thick, dry, densely squamulose, bright-steel-blue, fading to subumbrinous with age, 3–4 cm. long, 3–4 mm. thick.

Type collected on the end of a dead sugar maple log in the woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 210* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York.

7. **Leptoniella Whiteae** Murrill, sp. nov.

Pileus convex, depressed at the center, solitary, 3 cm. broad; surface hygrophanous, yellowish-brown, conspicuously striate nearly to the center, squamulose, margin concolorous, uneven; context with mild taste; lamellae sinuate, with a slight decurrent tooth, inserted, broad, ventricose, subcrowded, whitish to salmon-colored, concolorous on the edges; spores broadly ellipsoid, angular, usually obliquely apiculate, rose-colored, 12–14 × 8–10 μ; stipe equal, rather slender, glabrous, shining, yellowish, cartilaginous, hollow, whitish-mycelioid at the base, 5–6 cm. long, 2–3 mm. thick.

Type collected on much decayed wood in leaf-mold at Bar Harbor, Maine, August 12, 1901, *V. S. White 99* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. **Leptoniella rosea** (Longyear) Murrill.

Leptonia rosea Longyear, Trans. Mich. Acad. Sci. **3**: 59. 1902.

Pileus thin, convex, obtuse and depressed on the disk, 3–3.5 cm. broad; surface roseous, with brown fibrils, darker on the disk, margin not striate; lamellae adnate with a slight tooth, not crowded, 6 mm. broad, whitish, becoming flesh-colored; spores angular, flesh-colored, 10–12 × 7–8 μ; stipe slender, smooth, roseous, cartilaginous, stuffed, slightly thickened at the apex and base, whitish-mycelioid at the base, 7–8 cm. long.

TYPE LOCALITY: Kent County, Michigan.
HABITAT: In burnt soil on a sandy hillside.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Trans. Mich. Acad. Sci. **3**: *f. 5*.

9. **Leptoniella roseibrunnea** Murrill, sp. nov.

Pileus rather thick, convex-umbilicate, solitary, 1 cm. broad; surface moist, hygrophanous, uniformly rosy-brown, striate, margin entire, concolorous; lamellae adnate, very broad, distant, inserted, entire on the edges, salmon-colored; spores ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 7–8.5 × 5 μ; stipe very slender, equal, smooth, glabrous, brown, about 4 cm. long and 1 mm. thick.

Type collected on the ground in hemlock woods in the New York Botanical Garden, August 28, 1911, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

10. **Leptoniella parva** (Peck) Murrill.

Leptonia parva Peck, Ann. Rep. N. Y. State Mus. **45**: 78 (18). 1893.

Pileus thin, convex or nearly plane, umbilicate, about 12 mm. broad; surface slightly radiate-striate, violaceous-brown, darker and squamulose on the umbilicus; lamellae subdistant, adnate, whitish tinged with flesh-color; spores irregular or angular, uninucleate, about 7.5 × 6 μ; stipe slender, glabrous, solid, concolorous, about 2.5 cm. long, scarcely 2 mm. thick.

TYPE LOCALITY: Lake Pleasant, Hamilton County, New York.
HABITAT: In woods.
DISTRIBUTION: Maine and northern New York.

11. **Leptoniella aeruginosa** (Peck) Murrill.

Leptonia aeruginosa Peck, Bull. Torrey Club **26**: 65. 1899.

Pileus thin, convex, umbilicate or centrally depressed, 1.5–2.5 cm. broad; surface striate, aeruginous, fading with age to an ashy-green hue; lamellae broad, subdistant, adnate, aeruginous, tinged with flesh-color when mature; spores angular, 7.5–10 μ long, usually containing a single large nucleus; stipe slender, glabrous, hollow, concolorous, about 2.5 cm. long and 2 mm. thick.

TYPE LOCALITY: Oxbow River, Canada.
HABITAT: In shaded places in woods.
DISTRIBUTION: Known only from the type locality.

12. **Leptoniella foliomarginata** (Peck) Murrill.

Agaricus foliomarginatus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 49. 1873.
Agaricus marginatus Peck, Ann. Rep. N. Y. State Mus. **26**: 56. 1874.
Leptonia marginata Sacc. Syll. Fung. **5**: 710. 1887.

Pileus convex, umbilicate, 2.5–5 cm. broad; surface bluish-brown, scabrous and a little darker on the disk; lamellae broad, subdistant, plane, whitish, becoming flesh-colored, the edges entire and colored like the pileus; stipe smooth, equal, concolorous, solid at the base, with a small cavity at the apex, 1.2–2 cm. long, 1 mm. thick.

TYPE LOCALITY: Maryland, New York.
HABITAT: On the ground and on decaying wood in groves.
DISTRIBUTION: Known only from the type locality.

13. **Leptoniella columbaria** (Bull.) Murrill.

Agaricus columbarius Bull. Herb. Fr. *pl. 413, f. 1.* 1788.
Agaricus serrula Pers. Syn. Fung. 463. 1801.
Agaricus serrulatus Fries, Syst. Myc. **1**: 204. 1821.
Leptonia serrulata Quél. Champ. Jura Vosg. 88. 1872.

Pileus thin, hemispheric to expanded, umbilicate, 2–4 cm. broad; surface squamulose, bluish-black, often becoming grayish-brown with age, margin not striate; lamellae adnate, separating, broad, salmon-colored, black and serrulate on the edges; spores ellipsoid, angular, irregular, apiculate, uniguttulate, rose-colored, 8–10 × 6–7 μ; stipe glabrous, black or bluish, black-punctate at the apex, hollow, 4–6 cm. long, 2–3 mm. thick.

TYPE LOCALITY: France.
HABITAT: Among humus in woods.
DISTRIBUTION: Maine to Wisconsin and Ohio; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 413, f. 1;* Gill. Champ. Fr. *pl. 273 (437);* Hard, Mushr. *f. 207.*

14. **Leptoniella multicolor** Murrill.

Agaricus variicolor Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 290. 1859. Not *A. variecolor* Pers. 1801.
Leptonia variicolor Sacc. Syll. Fung. **5**: 715. 1887.

Pileus umbilicate, cespitose, 1.25–4 cm. broad; surface smooth, glabrous, pale-fuscous; context thin; lamellae adnate, broad, distant, abruptly attenuate behind, pale-purplish-white; spores irregular, 8 μ long; stipe glabrous, greenish-blue, stuffed with woolly fibers, 5 cm. long, 3 mm. thick.

TYPE LOCALITY: Connecticut.
HABITAT: Among bushes on damp ground.
DISTRIBUTION: Known only from the type locality.

15. **Leptoniella subplacida** Murrill, sp. nov.

Pileus convex to expanded, becoming depressed at the center, rather thick and firm, gregarious, 4–5 cm. broad; surface dry, grayish-yellowish-brown, somewhat shining, striate, squamulose, margin entire, concolorous, incurved; context with somewhat nutty taste; lamellae adnate or sinuate, distant, rather broad, almost white, becoming salmon-colored, entire and concolorous on the edges; spores very irregular, broadly ellipsoid, apiculate, angular, uniguttulate, rose-colored, 10–12.5 × 7 μ; stipe rather thick, equal, hollow, smooth, glabrous, murinous to plumbeous, darker than the pileus, 4–5 cm. long, 5–6 mm. thick.

Type collected on decaying wood or rich leaf-mold in woods at Bar Harbor, Maine, July 22, 1901, *V. S. White 47* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Bar Harbor, Maine.

16. **Leptoniella Earlei** Murrill, sp. nov.

Pileus large, rather thin, becoming depressed, solitary, 4 cm. broad; surface pale-grayish-brown, squamulose on the disk, margin concolorous, upturned with age, not striate; lamellae adnexed, inserted, subcrowded, subventricose, rather narrow, white to pale-pink, entire and concolorous on the edges; spores broadly ellipsoid, irregular, angular, obliquely apiculate, uniguttulate, rose-colored, 12–14 × 8–10 μ; stipe equal, rather thick, subconcolorous, glabrous, hollow, whitish-mycelioid at the base, 8 cm. long, 4 mm. thick.

Type collected among humus at the edge of a swamp at West Park, New York, August 3, 1903, *F. S. Earle 1634* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

17. **Leptoniella glabra** Murrill, sp. nov.

Pileus very thin, convex to plane, not umbonate, solitary, 2 cm. broad; surface smooth, glabrous, not viscid, uniformly dull-avellaneous, striate, with a satiny luster, margin entire, concolorous, incurved; context exceedingly thin; lamellae adnexed, narrow, ventricose, inserted, subdistant, entire on the edges, grayish-white to salmon-colored; spores subglobose, angular, apiculate, uniguttulate, rose-colored, 6–8 μ; stipe slightly eccentric, slender, equal, smooth, glabrous, grayish-white, 2–3 cm. long, 1 mm. thick.

Type collected on dead wood at Camp Sebec, on the north shore of Sebec Lake, Piscataquis County, Maine, September 16, 17, 1905, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

18. **Leptoniella undulatella** (Peck) Murrill.

Agaricus undulatellus Peck, Ann. Rep. N. Y. State Mus. **31**: 33. 1879.
Leptonia undulatella Sacc. Syll. Fung. 5: 708. 1887.

Pileus membranous, convex, 1.2–2.5 cm. broad; surface minutely scurfy, squamulose on the disk, hygrophanous, grayish-brown and striatulate when moist, wavy on the margin; lamellae rounded behind, nearly free, subdistant, whitish, becoming tinged with flesh-color; spores irregular, 10 × 7.5 μ; stipe slender, glabrous, concolorous, usually curved, about 2.5 cm. long.

TYPE LOCALITY: Pine Hill, New York.
HABITAT: On decaying prostrate trunks of trees.
DISTRIBUTION: Known only from the type locality.

19. **Leptoniella alabamensis** Murrill, sp. nov.

Pileus small, convex, gregarious, 1–1.5 cm. broad; surface dry, light-brown, covered with silky fibrils, margin entire, concolorous; context with mild taste; lamellae adnate, easily separating, broad, ventricose, subcrowded, salmon-colored; spores subglobose, irregular, angular, obliquely apiculate, uniguttulate, 7–8 μ; stipe slender, equal, cartilaginous, solid, concolorous, partly clothed with fine, light-colored hairs, mostly glabrous in dried specimens, 5 cm. long, 1–2 mm. thick.

Type collected on the ground at Auburn, Alabama, July 3, 1897, *F. S. Earle & C. F. Baker* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

20. **Leptoniella longistriata** (Peck) Murrill.

Leptonia longistriata Peck, Bull. N. Y. State Mus. 150: 57. 1911.

Pileus conic or convex, submembranous, fragile, umbilicate, 1–1.5 cm. broad; surface subhygrophanous, squamulose, striatulate nearly or quite to the umbilicus both when moist and when dry, grayish-brown; lamellae thin, fragile, subdistant, eroded or wavy on the edges, whitish, becoming flesh-colored; spores irregular or angular, uninucleate, 12–16 × 8–10 μ; stipe straight, slender, tough, glabrous, shining when dry, hollow, concolorous, with white mycelium at the base, 3–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On the ground by roadsides.
DISTRIBUTION: Massachusetts.

21. **Leptoniella grisea** (Peck) Murrill.

Leptonia grisea Peck, Ann. Rep. N. Y. State Mus. 45: 79 (19). 1893.

Pileus broadly convex or plane, umbilicate, 1.2–2.5 cm. broad; surface striatulate when moist, grayish-brown, glabrous, except on the umbilicus, which is squamulose; lamellae broad, subdistant, grayish; spores subglobose, angular, uninucleate, 7.5–10 μ; stipe slender, hollow, glabrous, concolorous, 3.5–6 cm. long, 2 mm. thick.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: Among sphagnum or on the ground in wet woods.
DISTRIBUTION: Maine and New York.

22. **Leptoniella umbilicata** Murrill, sp. nov.

Pileus thin, convex, deeply umbilicate, solitary, 2 cm. broad; surface smooth, uniformly pale-grayish-brown, fibrillose-scaly, margin entire, concolorous, not striate; lamellae adnexed or subadnate, distant, plane, rather narrow, pallid to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, irregular, angular, obliquely apiculate, rose-colored, 8–10.5 × 7 μ; stipe slender, equal, cartilaginous, solid, smooth, glabrous, pallid, 4 cm. long, 2 mm. thick.

Type collected in soil by the roadside in mixed woods at West Park, New York, July 30, 1903, *F. S. Earle 1580* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Connecticut and New York.

23. **Leptoniella validipes** (Peck) Murrill.

Leptonia validipes Peck, Mycologia 5: 70. 1913.

Pileus thin, membranous, convex, slightly depressed at the center or subumbilicate fragile, gregarious, 2–3 cm. broad; surface minutely squamulose, dark-gray or grayish-brown; lamellae thin, crowded, entire on the edges, adnate, white and smooth, becoming pink and dusted with the spores, which are angular, apiculate, uninucleate, 10–12 × 6–8 μ; stipe stout but fragile, pruinose at the apex, flexuous, hollow, sometimes twisted, often bent at the base, pale-violet-gray above, white below with white mycelium at the base, 3–6 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On humus in swamps.
DISTRIBUTION: Known only from the type locality.

24. **Leptoniella abnormis** (Peck) Murrill.

Leptonia abnormis Peck, Jour. Myc. 14: 2. 1908.

Pileus thin, convex, broadly umbilicate, 2–2.5 cm. broad; surface glabrous, hygrophanous, blackish-brown, shining and obscurely striatulate on the margin when moist, dark-grayish-brown when the moisture has escaped; context concolorous; lamellae broad, subdistant, slightly rounded behind, adnexed, pinkish or pale-flesh-colored when mature; spores broadly ellipsoid or subglobose, 6–7 × 5–6 μ; stipe equal, glabrous, hollow, whitish, 2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Ellis, Massachusetts.
HABITAT: Damp soil at the edge of deciduous woods.
DISTRIBUTION: Massachusetts.

25. **Leptoniella hortensis** (Peck) Murrill.

Leptonia hortensis Peck, Bull. N. Y. State Mus. 67: 26. 1903.

Pileus thin, convex, umbilicate, 1–2 cm. broad; surface hygrophanous, reddish-brown and striatulate when moist, paler and silky when dry; lamellae thin, crowded, adnexed, whitish when young, pinkish when mature; spores angular, uninucleate, 7.5–10 × 7.5 μ; stipe short, thin, glabrous, hollow, concolorous, 1.5–2.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Menands, New York.
HABITAT: On naked ground in gardens.
DISTRIBUTION: Known only from the type locality.

26. **Leptoniella gracilipes** (Peck) Murrill.

Leptonia gracilipes Peck, Mycologia 5: 69. 1913.

Pileus thin, membranous, hemispheric-convex or nearly plane, minutely papillate, becoming umbilicate, 1–2 cm. broad; surface subscabrous, hygrophanous, striatulate when moist, striate when dry, blackish-brown when young, becoming paler with age; lamellae ascending or arcuate, adnexed, white at first, then pale-flesh-colored; spores incarnate, angular, uninucleate, apiculate, 8–10 × 6–7 μ; stipe equal or slightly tapering upward, slender, hollow, glabrous, mouse-gray, becoming blackish on drying, often with white mycelium at the base, 2–4 cm. long, 1–1.5 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: In a wood road.
DISTRIBUTION: Known only from the type locality.

27. **Leptoniella seticeps** (Atk.) Murrill.

Leptonia seticeps Atk. Jour. Myc. 8: 116. 1902.

Pileus convex to expanded, gregarious, 1–3 cm. broad; surface walnut-brown, darker at the center, faintly and finely striate, minutely granulose under a lens, margin somewhat incurved at first; context whitish, very thin, the taste not characteristic; lamellae slightly adnexed, about 4 mm. broad, elliptic, pale-flesh-colored, eroded on the edges; spores ovoid or subglobose, very pale flesh-colored; stipe smooth, whitish at the base, somewhat paler than the pileus at the apex, fibrous-striate, straight or curved, fleshy, solid, even or very slightly enlarged below, 1–2 cm. long, 2–3 mm. thick.

TYPE LOCALITY: McGowan's woods, Ithaca, New York.
HABITAT: On rotten logs or very rotten wood on the ground.
DISTRIBUTION: Known only from the type locality.

28. **Leptoniella Davisiana** (Peck) Murrill.

Leptonia Davisiana Peck, Bull. N. Y. State Mus. 157: 49. 1912.

Pileus thin, fragile, submembranous, convex, becoming plane or broadly depressed, 1–2.5 cm. broad; surface glabrous but slightly squamulose at the center, often widely striate when dry, blackish-brown; lamellae thin, crowded, subventricose, adnexed, at first white, becoming pinkish and pulverulent from the spores, which are angular, uninucleate, 10–12 × 8–10 μ; stipe slender, equal, glabrous, stuffed or hollow, concolorous, 1.5–3 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Brookline, Massachusetts.
HABITAT: Among short grass on a lawn.
DISTRIBUTION: Known only from the type locality.

29. **Leptoniella semiglobata** Murrill, sp. nov.

Pileus hemispheric, not expanding, gregarious or slightly cespitose, 2–3 cm. broad; surface slightly viscid when moist, grayish-brown with darker brown squamules, margin entire, concolorous, incurved; context with slightly nutty taste; lamellae adnate, subdistant, inserted, broad, whitish to salmon-colored, uneven and concolorous on the edges; spores broadly ellipsoid, angular, obliquely apiculate, rose-colored, 8–10.5 × 7 μ; stipe cylindric, equal, hollow, cartilaginous, smooth, glabrous, yellowish-gray, much paler than the pileus, 7–8 cm. long, 2–3 mm. thick.

Type collected on much decayed wood in woods at Bar Harbor, Maine, August 9, 1901, *V. S. White 85* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

30. **Leptoniella flavobrunnea** (Peck) Murrill.

Leptonia flavobrunnea Peck, Bull. Torrey Club **36**: 332. 1909.

Pileus thin, fragile, convex, umbilicate or centrally depressed, decurved on the margin, sometimes becoming nearly plane, gregarious, 1–2.5 cm. broad; surface subhygrophanous, minutely tomentose at the center, dark-brown or reddish-brown when young and moist, yellowish-brown when dry; context having a slightly farinaceous taste; lamellae adnate or subdecurrent, somewhat crowded, pale-lemon-yellow, becoming reddish-ocher or pinkish, sometimes transversely venose; spores subglobose, angular, uninucleate, obliquely apiculate at one end, 8 μ; stipe slender, fragile, flexuous, terete or compressed, stuffed or hollow, glabrous, fibrous, pallid or lemon-yellow, becoming brownish-yellow, often curved and white at the base, 5–7.5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: In swamps under deciduous trees.
DISTRIBUTION: Known only from the type locality.

31. **Leptoniella strictipes** (Peck) Murrill.

Leptonia strictipes Peck, Bull. N. Y. State Mus. 150: 57. 1911.

Pileus thin, campanulate or convex, obtuse or slightly umbilicate, 1.5–2.5 cm. broad; surface yellowish-brown or dark-brown, even or striatulate on the thin margin; lamellae thin, narrow, crowded, adnate or slightly sinuate with a decurrent tooth, dusted and subincarnate from the spores, which are angular, uninucleate, usually with an oblique apiculus at one end, 10–14 × 7–9 μ; stipe long, slender, straight, glabrous, hollow, equal or slightly tapering upward, with whitish mycelium at the base, 6–8 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: Among sphagnum.
DISTRIBUTION: Known only from the type locality.

32. **Leptoniella subvilis** (Peck) Murrill.

Agaricus rhodopolius umbilicatus Peck, Ann. Rep. N. Y. State Mus. **38**: 109. 1885.
Clitopilus subvilis Peck, Ann. Rep. N. Y. State Mus. **40**: 53. 1887.

Pileus thin, centrally depressed or umbilicate, 1.5–3 cm. broad; surface hygrophanous, dark-brown when moist, grayish-brown and silky-shining when dry, margin decurved, striatulate when moist; context having a farinaceous taste; lamellae subdistant, adnate or slightly decurrent, whitish when young, becoming flesh-colored; spores angular, 7.5–10 μ long; stipe slender, brittle, rather long, stuffed or hollow, glabrous, concolorous or a little paler, 5–8 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Karner, New York.
HABITAT: On damp soil in thin woods.
DISTRIBUTION: New York and North Carolina.

33. **Leptoniella edulis** (Peck) Murrill.

Leptonia edulis Peck, Bull. Torrey Club **22**: 201. 1895.

Pileus thin, convex or centrally depressed, with or without an umbo, 1–3.5 cm. broad; surface velvety, dark-gray; context having a nutty flavor; lamellae rather broad, subventricose, adnexed, moderately crowded, at first whitish or light-drab, becoming flesh-colored; spores subglobose, angular, apiculate at one end, 7.5–10 μ long, containing a single large nucleus; stipe slender, hollow, concolorous, often with an abundant, white, mycelioid tomentum at the base, 2.5–3.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: Among grass and weeds.
DISTRIBUTION: California.

34. **Leptoniella occidentalis** Murrill, sp. nov.

Pileus broad, thin, regular, convex to plane, not umbonate, solitary, 2–3 cm. broad; surface dry, finely scabrous or fibrillose, not striate, uniformly very dark steel-blue-violet or

lilac-black, margin entire, concolorous; context exceedingly thin; lamellae adnexed with a slight decurrent tooth, several times inserted, rather broad, ventricose, distant, entire on the edges, white to lilac or salmon-colored; spores ellipsoid, angular, apiculate, uniguttulate, 9–10 × 6–7 μ; stipe slender, equal, glabrous, cartilaginous, concolorous, whitish-mycelioid at the base, 4–5 cm. long, 2–3 mm. thick.

Type collected on the ground among humus under fir trees in mixed woods at Corvallis, Oregon, November 6–11, 1911, *W. A. Murrill 978* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Oregon and California.

35. **Leptoniella fuliginosa** Murrill, sp. nov.

Pileus hemispheric, not expanding, regular in shape, gregarious, reaching 2.5 cm. broad; surface glabrous, striate, fuliginous, smooth and darker on the disk, margin entire, concolorous, inflexed; lamellae adnate, arcuate, subdistant, broad, pallid to salmon-colored, undulate and concolorous on the edges; spores broadly ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 8–9 × 6–7 μ; stipe slender, subequal, smooth, glabrous, pale-avellaneous, solid, 4 cm. long, 2–2.5 mm. thick.

Type collected in soil among mosses on a low meadow in mixed woods at La Honda, near Palo Alto, California, November 25, 1911, *W. A. Murrill & L. R. Abrams 1302* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

36. **Leptoniella nigra** Murrill, sp. nov.

Pileus rather firm, convex, not fully expanding, slightly umbilicate at times, gregarious, 3–4 cm. broad; surface black, smooth, glabrous, polished, sometimes lacerate-striate in older specimens, margin concolorous, incurved, entire to lacerate; lamellae rather distant, broad, adnate, grayish-murinous to salmon-colored, entire and concolorous on the edges; spores ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 12–14 × 7–9 μ; stipe rather thick, cartilaginous, hollow, equal or slightly tapering upward, smooth, glabrous, plumbeous, whitish at the base, 4–6 cm. long, 4–6 mm. thick.

Type collected on the bank of a stream in soil among mosses in mixed woods at La Honda, near Palo Alto, California, November 25, 1911, *W. A. Murrill & L. R. Abrams 1257* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

37. **Leptoniella atrosquamosa** Murrill, Mycologia **3**: 272. 1911.

Leptonia atrosquamosa Murrill, Mycologia **4**: 332. 1912.

Pileus broadly convex, slightly depressed, regular, solitary, 2 cm. broad; surface avellaneous, striate, clothed with innate, imbricate, fuliginous scales which are upturned at the end, the depressed umbo being decorated with black tufted scales; lamellae adnate, narrow, distant, about three times inserted, the edges entire, concolorous; spores angular, 8–10 μ; stipe cylindric, equal, murinous, 3.5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Morce's Gap, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

38. **Leptoniella miniata** (Pat.) Murrill, Mycologia **3**: 272. 1911.

Leptonia miniata Pat. Bull. Soc. Myc. Fr. **16**: 176. 1900.

Pileus fleshy, convex, mamellate, about 5 cm. broad; surface glabrous, brilliant, pale-red when fresh, chestnut-red when dried, margin striate; lamellae unequal, adnate, broad, dull-red, powdered by the spores, which are angular, rosy, 10–13 μ; stipe long and slender, more or less radicate, concolorous, except at the base where it is orange, hollow, 8–10 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Guadeloupe.
HABITAT: On decayed trunks of various trees.
DISTRIBUTION: Guadeloupe.

39. **Leptoniella Earlei** Murrill, Mycologia **3**: 272. 1911.

Leptonia Earlei Murrill, Mycologia **4**: 332. 1912.

Pileus convex, umbilicate, thin, solitary, 2 cm. broad; surface pale-tan, subfurfuraceous, the disk scaly, margin thin, not striate; lamellae adnexed, distant, broad, dirty-pink, hetero-

phyllous; spores angular, irregular, 10–13 × 7–8 μ; stipe cylindric, glabrous, subpruinose above, slightly paler than the pileus, hollow, 4 cm. long, 2 mm. thick.

TYPE LOCALITY: El Yunque mountain, Cuba.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

40. **Leptoniella hypoporphyra** (Berk. & Curt.) Murrill, Mycologia **3**: 272. 1911.

Agaricus hypoporphyrus Berk. & Curt. Jour. Linn. Soc. **10**: 289. 1868.
Leptonia hypoporphyra Sacc. Syll. Fung. **5**: 713. 1887.

Pileus thin, depressed, 2.5 cm. broad; surface glabrous, shining, fuscous, margin striate; lamellae broad, livid-purple; spores angular, 7–9 μ; stipe slender, elongate, subfuscous, dilated at the apex, 4 cm. long, 1.5 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: In woods.
DISTRIBUTION: Cuba, Guadeloupe, and Honduras.

41. **Leptoniella murina** Murrill, sp. nov.

Pileus small, thin, convex to subexpanded, solitary, 2 cm. broad; surface very smooth, glabrous, not striate, uniformly murinous, margin entire, concolorous; lamellae adnexed, attenuate at both ends, narrow, distant, rosy-isabelline, entire and concolorous on the edges; spores globose, somewhat angular, apiculate, uniguttulate, rose-colored, 7–9 μ; stipe very slender, smooth, glabrous, slightly enlarged at the apex, murinous, 4–5 cm. long, 1–2 mm. thick.

Type collected on dead wood in woods at Orizaba, Mexico, January 10–14, 1910, *W. A. & Edna L. Murrill 811* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

42. **Leptoniella mexicana** Murrill, Mycologia **3**: 273. 1911.

Leptonia mexicana Murrill, Mycologia **4**: 332. 1912.

Pileus convex to expanded, umbilicate, gregarious, 1.5 cm. broad; surface smooth, silky-fibrillose, pale-avellaneous, margin thin, fragile; lamellae adnate, broad, distant, heterophyllous, pale- ashy-gray with a slight rosy tint; spores polygonal, uninucleate, 7 × 4.5–5 μ; stipe slightly larger below, concolorous, glabrous, cartilaginous, 2.5 cm. long, 1.5 mm. thick.

TYPE LOCALITY: Orizaba, Vera Cruz, Mexico.
HABITAT: On the ground in humus in a coffee plantation.
DISTRIBUTION: Known only from the type locality.

43. **Leptoniella cinchonensis** Murrill, Mycologia **3**: 273. 1911.

Leptonia cinchonensis Murrill, Mycologia **4**: 332. 1912.

Pileus thin, irregular, convex, umbilicate, gregarious, 2–2.5 cm. broad, less than 1 cm. high; surface dry, striate, avellaneous, fuliginous at the center, margin lobed; lamellae adnate, rather broad and distant, pale-russet; spores angular, uninucleate, 10–12 × 7–9 μ; stipe cylindric, smooth, fumosous, slightly tapering upward, 3 cm. long, 2.2 mm. thick.

TYPE LOCALITY: Cinchona, Jamaica.
HABITAT: On the ground on a shaded bank.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Leptonia aethiops (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 274. 1879. (*Agaricus aethiops* Fries, Epicr. Myc. 152. 1838.) Reported from New Jersey by Ellis.

Leptonia asprella (Fries) Quél. Champ. Jura Vosg. 89. 1872. (*Agaricus asprellus* Fries, Syst. Myc. **1**: 208. 1821.) Reported from New England, New York, and Ohio. A number of specimens at Albany from New York and Massachusetts have been compared with material from Bresadola and found to be different.

Leptonia chalybea (Pers.) Gill. Champ. Fr. 413. 1876. (*Agaricus chalybeus* Pers. Syn.

Fung. 343. 1801.) Reported from many parts of the United States by the older mycologists, but no correctly determined American material has been found either at Albany or elsewhere.

Leptonia formosa (Fries) Gill. Champ. Fr. 414. 1876. (*Agaricus formosus* Fries, Syst. Myc. **1**: 208. 1821.) Reported from New York by Peck and from Maine by Miss White, but none of these specimens corresponds with authentic European material.

Leptonia incana (Fries) Gill. Champ. Fr. 414. 1876. (*Agaricus incanus* Fries, Syst. Myc. **1**: 209. 1821. Not *A. incanus* Pers. 1801.) Reported from New York by Underwood and Atkinson and from Ohio by Hard. Authentic specimens from Bresadola appear to be quite different from American material.

Leptonia scabrosa (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 279. 1879. (*Agaricus scabrosus* Fries, Epicr. Myc. 154. 1838.) Reported by Peck as growing in swamps in New York. Specimens so determined are preserved on sheets at Albany, accompanied by good colored figures.

55. NOLANEA (Fries) Quél. Champ. Jura Vosg. 89. 1872.

Agaricus § *Nolanea* Fries, Syst. Myc. **1**: 204 1821.

Pileus thin, fleshy, putrescent, usually campanulate, the margin straight and appressed when young; lamellae free or adnexed; spores pink or salmon-colored, usually angular; stipe central, slender, tubular, with cartilaginous cortex; veil none.

Type species, *Nolanea pascua* (Pers.) Quél.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus white or whitish.
- Pileus minutely papillate. — 1. *N. parvipapillata.*
- Pileus not papillate.
  - Pileus 12 mm. broad. — 2. *N. delicatula.*
  - Pileus 2.5–3.5 cm. broad.
    - Pileus squamulose on the disk, margin striate. — 3. *N. Clintoniana.*
    - Pileus smooth, margin not striate. — 4. *N. Earlei.*

Pileus isabelline or fulvous.
- Pileus papillate. — 5. *N. conica.*
- Pileus not papillate.
  - Pileus isabelline. — 6. *N. isabellina.*
  - Pileus fulvous. — 7. *N. substaurospora.*

Pileus olive-green.
- Pileus reaching 7 mm. broad. — 8. *N. olivacea.*
- Pileus reaching 15 mm. broad. — 9. *N. chlorolivacea.*

Pileus blue.
- Pileus 1–3 mm. broad. — 10. *N. atrocyanea.*
- Pileus 1–2 cm. broad. — 11. *N. Howellii.*

Pileus grayish-brown or avellaneous.
- Stipe 1 mm. thick.
  - Pileus umbonate. — 12. *N. gracilipes.*
  - Pileus umbilicate. — 13. *N. parvula.*
- Stipe 2 mm. thick. — 14. *N. avellanea.*
- Stipe 2–4 mm. thick. — 15. *N. fuscogrisella.*

Pileus smoky-brown, umbilicate. — 16. *N. suaveolens.*

Pileus dark-brown or fuliginous.
- Pileus 1–3 cm. broad.
  - Surface glabrous or nearly so.
    - Pileus conic, papillate, 6–12 mm. broad. — 17. *N. fuscifolia.*
    - Pileus plane or depressed, 1–3 cm. broad. — 18. *N. multiformis.*
  - Surface distinctly fibrillose.
    - Stipe glabrous. — 19. *N. fibrillosa.*
    - Stipe fibrillose. — 20. *N. fibrillosipes.*
  - Surface furfuraceous or squamulose.
    - Stipe squamulose, 2.5–3.5 cm. long. — 21. *N. dysthales.*
    - Stipe hairy, 6–7 cm. long. — 22. *N. nodospora.*
- Pileus 3–5 cm. broad.
  - Stipe 2.5–4 cm. long. — 23. *N. subpicea.*
  - Stipe 6–12 cm. long. — 24. *N. mammosa.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

Pileus sordid-avellaneous; spores globose, 8–9 μ. — 25. *N. occidentalis.*
Pileus brown or fuliginous; spores ellipsoid, 10.5–14 × 7–8 μ. — 24. *N. mammosa.*

III. SPECIES CONFINED TO TROPICAL NORTH AMERICA

Pileus umbilicate. — 26. *N. helicta.*

Pileus convex, umbonate.
Stipe white, 3 cm. long. 27. *N. cubensis.*
Stipe avellaneous, 6 cm. long. 28. *N. jamaicensis.*

1. **Nolanea parvipapillata** Murrill, sp. nov.

Pileus thin, regular, convex to expanded, minutely papillate, gregarious, 1–2 cm. broad; surface dry, smooth, subsilky, not striate, pallid, margin entire, concolorous; context thin, pallid, with mild taste; lamellae slightly sinuate or adnate, subdistant, somewhat ventricose, several times inserted, pallid to pink; spores broadly ellipsoid, slightly angular and irregular, obliquely apiculate, uniguttulate, rose-colored, 7–9 × 6–7 μ; stipe equal, somewhat compressed, pallid, glabrous, smooth, solid, whitish-mycelioid at and near the base, 4–5 cm. long, 2–3 mm. thick.

Type collected among dead leaves in the New York Botanical Garden, July 30, 1902, *F. S. Earle 768* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

2. **Nolanea delicatula** (Peck) Sacc. Syll. Fung. **5**: 723. 1887.

Agaricus delicatulus Peck, Ann. Rep. N. Y. State Mus. **24**: 66. 1872.

Pileus submembranous, convex, becoming expanded, fragile, 12 mm. broad; surface smooth, hygrophanous, striatulate when moist, silky when dry, pinkish-white; lamellae subdistant, rather broad, ventricose, slightly attached, white, becoming flesh-colored; spores subellipsoid, irregular, 6 μ long; stipe long, slender, smooth, hollow, subpellucid, white, 5–7.5 cm. long, 1 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In sphagnum swamps.
DISTRIBUTION: New York and Massachusetts.

3. **Nolanea Clintoniana** (Peck) Sacc. Syll. Fung. **5**: 723. 1887.

Agaricus Clintonianus Peck, Ann. Rep. N. Y. State Mus. **24**: 67. 1872.

Pileus submembranous, broadly conic, sometimes expanded and wavy on the margin, 2.5–3.5 cm. broad; surface whitish or light-gray, a little darker and scabrous-squamulose on the disk, margin striate; lamellae narrow, crowded, nearly free or easily separating from the stipe, whitish, becoming pale-flesh-colored; spores subellipsoid, irregular, 6 μ long; stipe slender, equal, smooth, hollow, white, sometimes slightly tinged with yellow, with an abundant white mycelium at the base, 5–10 cm. long, scarcely 2 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In swamps.
DISTRIBUTION: Known only from the type locality.

4. **Nolanea Earlei** Murrill, sp. nov.

Pileus rather thin, regular, conic, becoming broadly convex or nearly plane, somewhat umbonate, gregarious, reaching 3 cm. broad; surface dry, smooth, subsilky, not striate, cinereous, becoming paler with age, margin entire, pallid; context thin, pallid, with mild taste; lamellae sinuate, subcrowded, ventricose, pallid to pinkish; spores globose, angular, apiculate, uniguttulate, rose-colored, 6–7 μ; stipe cylindric, equal, long, slender, silky, shining, subconcolorous, solid, whitish-mycelioid at the base, 8 cm. long, about 3 mm. thick.

Type collected on the ground in mixed woods in the New York Botanical Garden, July 30, 1902, *F. S. Earle 769* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

5. **Nolanea conica** (Peck) Sacc. Syll. Fung. **5**: 723. 1887.

Agaricus conicus Peck, Ann. Rep. N. Y. State Mus. **24**: 66. 1872.

Pileus submembranous, conic, at length expanded, with a minute umbo or papilla, 0.8–2 cm. broad; surface hygrophanous, dull-watery-cinnamon and striatulate when moist, silky-shining, subzonate, and pale-grayish-cinnamon when dry; lamellae crowded, rather narrow, nearly free, terminating before the margin of the pileus, bright-flesh-colored; spores subovoid,

irregular, 7.5 μ long; stipe slender, straight, hollow, brown, with white mycelium at the base, 5 cm. long, 1 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Among mosses and on rotten wood in swamps.
DISTRIBUTION: Maine to Virginia in the eastern United States.

6. **Nolanea isabellina** Murrill, sp. nov.

Pileus conic, somewhat irregular, neither depressed nor papillate, solitary, 1.5 cm. broad; surface smooth, appressed-silky, uniformly pale-isabelline, margin not striate, somewhat plicate, concolorous, appressed when young; lamellae adnexed, crowded, narrow, salmon-colored, entire and concolorous on the edges; spores ellipsoid, angular, rose-colored, 7–8.5 $\times$ 3–5 μ; stipe tapering upward, hollow, cartilaginous, smooth, pale-brown, atomaceous above, whitish-mycelioid below, 6 cm. long, 1–2 mm. thick.

Type collected at the edge of a swamp at West Park, New York, August 3, 1903, *F. S. Earle 1713* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

7. **Nolanea substaurospora** Murrill, sp. nov.

Pileus convex to expanded, solitary, 2–3.5 cm. broad; surface smooth, dry, glabrous, isabelline, darker on the disk, margin pale-yellowish, not striate, often becoming lacerate; context thin, whitish, with mild taste; lamellae deeply sinuate, nearly free, distant, broad, ventricose, whitish to salmon-colored; spores irregularly stellate, uniguttulate, rose-colored, copious, about 8 μ in diameter; stipe equal or slightly tapering upward, smooth, glabrous, fuliginous, paler toward the apex, hollow, 4–5 cm. long, 2–4 mm. thick.

Type collected in rather sterile soil in hemlock woods in the New York Botanical Garden, June 22, 1902, *F. S. Earle 231* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. **Nolanea olivacea** Murrill, sp. nov.

Pileus small, conic to campanulate, regular, gregarious, 7 mm. broad; surface dry, conspicuously fibrillose, striate, dark-olivaceous on the disk, becoming paler toward the olivaceous margin, which is entire and appressed to the stipe; lamellae adnexed, subdistant, rather broad, salmon-colored, entire and concolorous on the edges; spores oblong-ellipsoid, undulate or slightly angular in outline, apiculate, rose-colored, 14–16 $\times$ 6–7 μ; stipe equal, fibrillose like the pileus, pale-olivaceous, about 2 cm. long and 1 mm. thick.

Type collected on the ground among leaves in woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 861* (herb. N. Y Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

9. **Nolanea chlorolivacea** Atk. Ann. Myc. 7: 372. 1909.

Pileus campanulate, thin, 1–1.5 cm. broad; surface finely fibrous-striate, silky, shining, bright-olive-green; context dark, having a weak odor of soft soap; lamellae brown, tinged with flesh-color, broad and rounded in front, tapering gradually behind, adnexed; spores elongate, 5–7-angled, 9–11 $\times$ 6–8 μ; stipe cartilaginous, minutely floccose-scaly, even, solid, becoming hollow, dark-gray with an olive-green tint, whitish at the apex, 2 cm. long, 2.5 mm. thick.

TYPE LOCALITY: McGowan's woods, Ithaca, New York.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

10. **Nolanea atrocyanea** Clements, Bot. Surv. Neb. 4: 21. 1896.

Pileus membranous, campanulate, papillate, 1–3 mm. broad; surface glabrous or minutely verrucose, blackish-blue, margin striate, lacerate; lamellae narrow, subdistant, ochraceous; spores globose or ellipsoid, 3–7-angled, 7–9 $\times$ 5–7 μ; stipe equal, glabrous; cartilaginous, light-blue or glaucous, 1 cm. long, 0.5–1 mm. thick.

TYPE LOCALITY: Bellevue, Nebraska.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

11. **Nolanea Howellii** Peck, Bull. N. Y. State Mus. 150: 59. 1911.

Pileus thin, conic or convex, 1–2 cm. broad; surface minutely tomentulose, intensely blue; lamellae broad, adnate, subdistant, pale-yellow or straw-colored, becoming flesh-colored; spores oblong or subglobose, angular, with an oblique apiculus at the base, 10–12 × 7–8 μ; stipe slender, equal, hollow, glabrous, but covered with white, silky fibrils at the base, concolorous, 4–6 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Rockville, Indiana.
HABITAT: Among fallen leaves in damp places in thick woods.
DISTRIBUTION: Known only from the type locality.

12. **Nolanea gracilipes** Murrill, sp. nov.

Pileus very thin, conic to subexpanded, umbonate, gregarious, 1–2 cm. broad; surface dry, smooth, shining, somewhat striate, avellaneous, slightly darker on the disk, margin thin, pale-avellaneous, striate, splitting with age; lamellae sinuate, broad, ventricose, subcrowded, becoming salmon-colored, entire on the edges; spores subglobose to broadly ellipsoid, obliquely apiculate, decidedly angular, uniguttulate, copious, rose-colored, 6–8 μ long; stipe very slender, equal, smooth, glabrous, yellowish, cartilaginous, 2–3 cm. long, less than 1 mm. thick.

Type collected among grass in an open field near the New York Botanical Garden, August 27, 1911, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

13. **Nolanea parvula** Murrill, sp. nov.

Pileus thin, convex, umbilicate, solitary, 1 cm. broad; surface glabrous, smooth, uniformly grayish-brown, striate, margin entire, concolorous; lamellae adnexed, subdistant, broad, subventricose, pallid to pinkish-gray, somewhat interveined; spores pale-pink; stipe slender, equal, smooth, glabrous, concolorous, cartilaginous, 3–4 cm. long, 1 mm. thick.

Type collected on the ground in woods in the New York Botanical Garden, July 8, 1902, *F. S. Earle 319* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

14. **Nolanea avellanea** Murrill, sp. nov.

Pileus thin, campanulate, papillate, gregarious, 2–3 cm. broad; surface glabrous, striate, avellaneous, margin thin, entire to undulate, sometimes splitting with age, pale-avellaneous; lamellae adnexed, nearly free, rather broad, subdistant, entire on the edges; spores very irregular in shape, with long, angular projections, uniguttulate, rose-colored, 10–12 × 7 μ; stipe slender, fistulose, smooth, glabrous, often twisted, cartilaginous, snapping readily, whitish, 6–8 cm. long, 2 mm. thick.

Type collected on the ground at the edge of deciduous woods in the New York Botanical Garden, August 10, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
HABITAT: On the ground in moist woods, sometimes among mosses.
DISTRIBUTION: New York and Massachusetts.

15. **Nolanea fuscogrisella** (Peck) Sacc. Syll. Fung. **5**: 88. 1891.

Agaricus fuscogrisellus Peck, Ann. Rep. N. Y. State Mus. **39**: 40. 1887.

Pileus submembranous, convex, conic or campanulate, either with or without a central papilla, 1–2.5 cm. broad; surface hygrophanous, grayish-brown, and striatulate when moist, paler and shining when dry, the disk often remaining dark-colored; lamellae moderately crowded, subventricose, whitish, becoming flesh-colored; spores irregular, 10 × 7.5 μ; stipe slender, brittle, glabrous, hollow, slightly pruinose or mealy at the apex, pallid or livid, with a white mycelium at the base, 3.5–7.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Forge, Adirondack Mountains, New York.
HABITAT: In mossy ground in open places.
DISTRIBUTION: Known only from the type locality.

16. **Nolanea suaveolens** Peck, Bull. N. Y. State Mus. 122: 23. 1908.

Pileus submembranous, convex, umbilicate, 1.2–2 cm. broad; surface obscurely fibrillose or unpolished, indistinctly striate on the margin, smoky-brown; context of dried specimens having an agreeable aromatic odor; lamellae thin, unequal, crowded, adnate, whitish, becoming dingy-pink; spores angular, uninucleate, 10–12.5 × 6–7.5 μ; stipe slender, glabrous, hollow, brown, 3.5–5 cm. long, 1 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

17. **Nolanea fuscifolia** (Peck) Sacc. Syll. Fung. 5: 720. 1887.

Agaricus fuscifolius Peck, Bull. Buffalo Soc. Nat. Sci. 1: 49. 1873.

Pileus thin, conic or campanulate, papillate, 6–12 mm. broad; surface smooth, hygrophanous, dark-brown and striatulate when moist, grayish-brown and shining when dry; lamellae ascending, rather crowded, narrowed toward each end, brown; spores irregular, nucleate, 8 × 6 μ; stipe equal, stuffed, smooth, concolorous, with a white mycelium at the base, 2.5 cm. long, 1 mm. thick.

TYPE LOCALITY: Maryland, New York.
HABITAT: On old logs in woods.
DISTRIBUTION: Northern New York.

18. **Nolanea multiformis** Peck, Bull. N. Y. State Mus. 167: 45. 1913.

Pileus fleshy, thin, convex, nearly plane or centrally depressed, fragile, gregarious, 1–3 cm. broad; surface glabrous or slightly fibrillose, brown or blackish-brown, margin striatulate, becoming wavy, split, or irregular with age; lamellae thin, subdistant, broad, adnate, white, becoming pink; spores subglobose, angular, uninucleate, 10–12 × 8–10 μ; stipe equal, fragile, flexuous, glabrous or fibrillose, solid or hollow, white or brown, 1–2 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Brookline, Massachusetts.
HABITAT: On grassy ground.
DISTRIBUTION: Known only from the type locality.

19. **Nolanea fibrillosa** Peck, Ann. Rep. N. Y. State Mus. 54: 147. 1901.

Pileus thin, fragile, campanulate or very convex, 1.2–2 cm. broad; surface hygrophanous, brown and striatulate when moist, paler and somewhat shining when dry, fibrillose; lamellae ascending, crowded, narrowed behind, adnexed, somewhat ventricose, whitish or pallid, becoming salmon-colored, serrulate on the edges; spores ellipsoid, uninucleate, angular, 12.5–15 × 7.5–10 μ; stipe slender, glabrous, hollow, pallid, 5–7.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Floodwood, New York.
HABITAT: On damp or mossy ground in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. I, f. 12–19*.

20. **Nolanea fibrillosipes** Murrill, sp. nov.

Pileus rather firm, conic, not expanding, slightly depressed at the apex, gregarious, 1.5 cm. broad; surface somewhat striate when moist, uniformly blackish-fuliginous, clothed with fine whitish fibrils, margin entire, not projecting, concolorous; lamellae adnexed, distant, somewhat ventricose, villose on the edges, umbrinous; spores very elongate and irregular in shape, oblong-ellipsoid, angular, apiculate, rose-colored, 13–15 × 8–9 μ; stipe slender, cartilaginous, somewhat contracted at the base, concolorous, clothed with conspicuous whitish fibrils, which are longer than those on the pileus, about 6.5 cm. long, and 2 mm. thick.

Type collected in sphagnum at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 459* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

21. **Nolanea dysthales** (Peck) Murrill.

Agaricus dysthales Peck, Ann. Rep. N. Y. State Mus. **32**: 28. 1880.
Entoloma dysthales Sacc. Syll. Fung. 9: 85. 1891.

Pileus thin, submembranous, subconic, becoming convex or expanded, obtuse, 6–12 mm. broad; surface furfuraceous or squamulose, striate, brown, becoming paler with age; lamellae broad, subdistant, ventricose, brown or grayish-brown, becoming flesh-colored; spores irregular, oblong-ellipsoid, usually uninucleate, 15–16 × 7.5–8 μ; stipe slender, equal, hollow, squamulose, brownish, 2.5–3.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On damp ground in woods.
DISTRIBUTION: Known only from the type locality.

22. **Nolanea nodospora** Atk. Jour. Myc. **8**: 114. 1902.

Pileus campanulate, 1–1.5 cm. broad; surface very scaly with squarrose scales, dark-brown; context brown; lamellae ascending, ventricose, becoming adnate, concolorous; spores elongate or nodulose-elongate, pale-pink, 12–18 × 6–9 μ; stipe concolorous below, paler above, very hairy, becoming fistulose, slightly enlarged at the base, 6–7 cm. long, 1.5–2.5 mm. thick.

TYPE LOCALITY: Six Mile Creek, Ithaca, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

23. **Nolanea subpicea** Murrill, sp. nov.

Nolanea picea Peck, Ann. Rep. N. Y. State Mus. **50**: 102. 1897. Not *N. picea* Sacc. 1887.

Pileus thin, varying from broadly conic to convex or nearly plane, often irregular from its crowded or cespitose mode of growth, 3–5 cm. broad; surface smooth, covered with a grayish pruinosity, hygrophanous, blackish when moist, becoming grayish-brown to black when dry, margin thin, even, at first incurved and slightly tinged with red, projecting; context having a fishy odor; lamellae rather crowded, rounded behind, slightly adnexed, often becoming ventricose with the expansion of the pileus, more or less serrate on the edges, whitish, becoming flesh-colored; spores narrowly ellipsoid, 7.5–10 × 5 μ; stipe equal, often flexuose, stuffed or hollow, reddish-brown or blackish, 2.5–4 cm. long, 2–4 mm. thick.

Type collected among chips in the Adirondack Mountains, New York, September, *C. H. Peck* (herb. N. Y. State Mus.).
DISTRIBUTION: New York and Missouri.

24. **Nolanea mammosa** (L.) Quél. Champ. Jura Vosg. 89. 1872.

Agaricus mammosus L. Sp. Pl. 1174. 1753.

Pileus rather thin, large, conic-campanulate, papillate, gregarious, 3–4 cm. broad; surface dry, glabrous, usually somewhat striate, brown or fuliginous, becoming paler on drying; context thin, with peculiar odor; lamellae adnexed, seceding, broad, ventricose, subcrowded, grayish to salmon-colored; spores ellipsoid, irregular, angular, usually apiculate, rose-colored, 10.5–14 × 7–8 μ; stipe long, slender, equal, smooth, shining, subconcolorous or pallid, slightly enlarged and pruinose at the apex, snapping readily, whitish-mycelioid at the base, 6–12 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: On the ground in woods or grassy places.
DISTRIBUTION: Throughout the United States, south to Alabama and west to Washington and California; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. 1: *pl. 97;* Bres. Fungi Trid. *pl. 81;* Bull. Herb. Fr. *pl. 526* (as *Agaricus sericeus*); Quél. Champ. Jura Vosg. *pl. 6, f. 5;* Ricken, Blatterp. Deutschl. *pl. 74, f. 6.*
EXSICCATI: Sydow, Myc. Mar. *3516.*

25. **Nolanea occidentalis** Murrill, sp. nov.

Pileus thin, convex to plane, with a small rounded umbo, gregarious or subcespitose, 3 cm. broad; surface hygrophanous, glabrous, sordid-avellaneous, striate, margin entire, concolorous; context very thin, without odor; lamellae sinuate, nearly free, distant, ventricose, dull-whitish to salmon-colored; spores globose, angular, apiculate, uniguttulate, rose-colored, copious,

8–9 μ; stipe long, slender, subequal, smooth, avellaneous, hollow, snapping readily, 6 cm. long, 3 mm. thick.

Type collected among humus on the ground in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 342* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of Seattle, Washington.

26. **Nolanea helicta** (Berk.) Sacc. Syll. Fung. **5**: 729. 1887.

Agaricus helictus Berk. Jour. Linn. Soc. 15: 48. 1877.

Pileus deeply umbilicate, 2.5 cm. broad; surface silky, much wrinkled, pale-umber when dry, sometimes browner toward the margin; lamellae at first with a decurrent tooth, becoming adnexed; spores irregular, 7.5 μ long; stipe slender, twisted, 4 cm. long.

TYPE LOCALITY: Bermuda.
HABITAT: On rotten leaf-mold.
DISTRIBUTION: Known only from the type locality.

27. **Nolanea cubensis** Murrill, Mycologia **3**: 275. 1911.

Pileus thin, convex to subexpanded, subumbonate, 2–3 cm. broad; surface pale-fuscous, minutely silky-fibrillose, at length rimose, striate to the umbo; lamellae free, crowded, rather broad, ventricose, white to pale-roseous; spores subglobose, smooth, 6 μ; cystidia none; stipe cylindric, solid, white, glabrous above, brownish-flocculose at the base, 3 cm. long, 2 mm. thick.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On a piece of board on the ground in a coffee grove.
DISTRIBUTION: Known only from the type locality.

28. **Nolanea jamaicensis** Murrill, Mycologia **3**: 275. 1911.

Pileus campanulate with conic umbo, about 4 cm. broad; surface striate, glabrous, avellaneous, umbrinous to fuliginous at the umbo, margin entire, concolorous; lamellae rather broad, close, adnexed, salmon-colored from the copious spores, which are angular, somewhat longer than broad, 9–11 × 7–9 μ; stipe cylindric, equal, smooth, glabrous, pale-avellaneous, 6 cm. long, 3 mm. thick.

TYPE LOCALITY: Cinchona, Jamaica.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Nolanea Babingtonii (Blox.) Sacc. Syll. Fung. **5**: 717. 1887. (*Agaricus Babingtonii* Blox.; Berk. & Br. Ann. Mag. Nat. Hist. II. **13**: 399. 1854.) Reported from the eastern United States and Cuba, but the specimens I have seen are incorrectly determined.

Nolanea pascua (Pers.) Quél. Champ. Jura Vosg. 89. 1872. (*Agaricus pascuus* Pers. Comm. Fung. Bavar. 94. 1800.) Reported from various localities in the United States but I find no American material that corresponds to European material so named or to authentic descriptions and figures.

Nolanea quadrata (Berk. & Curt.) Sacc. Syll. Fung. **5**: 723. 1887. (*Agaricus quadratus* Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 290. 1859.) Described from specimens collected by Sprague in New England among wet moss in a pine swamp. Types have not been examined. The following description indicates a very distinct plant related to *Entoloma luteum* and its near relatives: pileus membranous, conic, becoming reflexed, 4 cm. broad; surface golden-brown; lamellae broadly ventricose, subtriangular, pinkish-golden-yellow; spores quadrangular or irregular, 14 μ; stipe golden-yellow, hollow, 8 cm. long.

Nolanea staurospora Bres. Fungi Trid. **1**: 18. 1882. Reported from Colorado by Clements, but his specimens are different from those of Bresadola.

56. **PLEUROPUS** Roussel, Fl. Calvados ed. 2. 67. 1806.

Agaricus § *Clitopilus* Fries, Epicr. Myc. 148. 1838.
Clitopilus Quél. Champ. Jura Vosg. 87. 1872.
Rhodosporus Schroet. Krypt.-Fl. Schles. **3**[1]: 617. 1889.
Hexajuga Fayod, Ann. Sci. Nat. VII. 9: 389. 1889.

Pileus fleshy, putrescent, solitary or gregarious; lamellae decurrent, rarely varying to adnate; spores pink or salmon-colored; stipe central, rarely eccentric, stout, fleshy or fibrous; veil none.

Type species, *Agaricus orcellus* Bull.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus uniformly white or varying to yellowish-white or grayish-white.
  Stipe 2–4 mm. thick.
    Stipe 2.5–3.5 cm. long.
      Spores subglobose, 4–5 μ. 1. *P. Underwoodii.*
      Spores ellipsoid, 10–12 × 6–7 μ. 2. *P. subplanus.*
    Stipe 5–7.5 cm. long.
      Pileus 1.5–2.5 cm. broad. 3. *P. lignicola.*
      Pileus 2.5–5 cm. broad. 4. *P. Woodianus.*
  Stipe 4–10 mm. thick.
    Hymenophores cespitose. 5. *P. caespitosus.*
    Hymenophores not cespitose.
      Context having a strong odor of melilot. 6. *P. Melilotus.*
      Context having a farinaceous odor.
        Pileus regular with central stipe; species found in woods. 7. *P. prunulus.*
        Pileus irregular with eccentric stipe; species found in pastures and open places. 8. *P. obesus.*
Pileus whitish with disk reddish-yellow or rusty. 9. *P. noveboracensis.*
Pileus white with a dark-lilac tint. 10. *P. Seymourianus.*
Pileus ochraceous. 11. *P. depressus.*
Pileus pale-cinereous.
  Pileus 1–3 cm. broad.
    Lamellae adnate or slightly decurrent. 12. *P. albogriseus.*
    Lamellae long-decurrent. 13. *P. subcinereus.*
  Pileus 4 cm. broad. 14. *P. cinereicolor.*
Pileus murinous. 15. *P. murinus.*
Pileus at first bluish, becoming pale-purple or mauve. 16. *P. washingtoniensis*
Pileus gray, grayish-brown, or avellaneous.
  Pileus 1–3.5 cm. broad.
    Stipe 1 cm. long. 17. *P. magnisporus.*
    Stipe 2.5 cm. long.
      Stipe 2 mm. thick; spores ellipsoid. 18. *P. unitinctus.*
      Stipe 2–4 mm. thick; spores subglobose.
        Hymenophores closely gregarious, 1–2 cm. broad. 19. *P. socialis.*
        Hymenophores not closely gregarious, 3–5 cm. broad. 20. *P. micropus.*
    Stipe 7.5–10 cm. long. 21. *P. squamulosus.*
  Pileus 5–10 cm. broad. 22. *P. abortivus.*
Pileus reddish or pale-alutaceous, 5–7.5 cm. broad. 23. *P. pascuensis.*
Pileus reddish-brown, 2.5 cm. broad. 24. *P. irregularis.*
Pileus grayish-incarnate; context incarnate. 25. *P. erythrosporus.*
Pileus chestnut-colored, black on the disk. 26. *P. Leptonia.*
Pileus dark-gray or blackish-brown. 27. *P. sphaerosporus.*

II. SPECIES CONFINED TO THE PACIFIC COAST

Pileus white, 1–1.5 cm. broad. 28. *P. adnatifolius.*
Pileus avellaneous, 2.5–3.5 cm. broad. 29. *P. avellaneus.*

III. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Pileus white, 1–2 cm. broad. 30. *P. Earlei.*
Pileus gray, 5–10 cm. broad. 22. *P. abortivus.*

1. **Pleuropus Underwoodii** (Peck) Murrill.

Clitopilus Underwoodii Peck, Ann. Rep. N. Y. State Mus. **49**: 32 (18). 1897.

Pileus rather thin but fleshy, nearly plane or slightly depressed at the center, 1–3.5 cm. broad; surface even, whitish; lamellae narrow, crowded, slightly decurrent, pale-flesh-colored; spores subglobose, 4–5 μ; stipe rather short, equal or slightly tapering upward, solid, whitish, about 2.5 cm. long and 4 mm. thick.

TYPE LOCALITY: Syracuse, New York.
HABITAT: On the ground under coniferous trees.
DISTRIBUTION: Known only from the type locality.

2. **Pleuropus subplanus** (Peck) Murrill.

Clitopilus subplanus Peck, Bull. N. Y. State Mus. 122: 18. 1908.

Pileus thin, broadly convex or nearly plane, slightly depressed at the center or distinctly umbilicate, 2.5–3.5 cm. broad; surface glabrous, whitish or grayish-white; context white; spores ellipsoid, flesh-colored, angular, uninucleate, 10–12.5 × 6–7.5 μ; stipe slender, glabrous, terete or compressed, stuffed or hollow, concolorous, 2.5–3.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Among fallen leaves and decaying vegetable matter in woods.
DISTRIBUTION: Northern New York.

3. **Pleuropus lignicola** Murrill, sp. nov.

Pileus firm, regular in shape, convex to subexpanded, depressed or umbilicate, gregarious, 1.5–2.5 cm. broad; surface smooth, glabrous, somewhat hygrophanous, uniformly pallid or whitish, margin entire, concolorous, not striate, strongly inrolled; context pallid, with somewhat unpleasant taste; lamellae short-decurrent, subdistant, rather narrow, white to salmon-colored, entire and concolorous on the edges; spores subglobose, angular, rose-colored, about 8 × 7 μ; stipe long, equal, smooth, glabrous, concolorous, spongy within, 5–6 cm. long, 2–4 mm. thick.

Type collected on decayed wood at Redding, Connecticut, July, 1902, *F. S. Earle 641* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

4. **Pleuropus Woodianus** (Peck) Murrill.

Agaricus Woodianus Peck, Ann. Rep. N. Y. State Mus. **24**: 65. 1872.
Clitopilus Woodianus Sacc. Syll. Fung. **5**: 706. 1887.

Pileus fleshy, thin, convex or expanded, umbilicate or centrally depressed, 2.5–5 cm. broad; surface hygrophanous when moist, whitish or yellowish-white and shining when dry, margin striatulate when moist, often wavy or flexuous; lamellae crowded, adnate-decurrent, whitish, becoming flesh-colored; spores subglobose, irregular, 8.7 μ; stipe equal, flexuous, shining, concolorous, solid or hollow from the erosion of insects, 7.5 cm. long, 4 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground and on old logs in woods.
DISTRIBUTION: Known only from the type locality.

5. **Pleuropus caespitosus** (Peck) Murrill.

Clitopilus caespitosus Peck, Ann. Rep. N. Y. State Mus. **41**: 65. 1888.

Pileus at first convex, firm, nearly regular, becoming nearly plane, fragile, often irregular or eccentric from its tufted mode of growth, mostly cespitose but varying at times to solitary, 2.5–10 cm. broad; surface glabrous but with a slight silky luster, shining-white, becoming whitish; context white, the taste mild; lamellae narrow, thin, crowded, slightly rounded behind or subsinuate to slightly decurrent, whitish, becoming dingy-incarnate; spores very pale pink, 5 × 4 μ; stipe solid, silky-fibrillose, white, slightly mealy at the apex, 3.5–7.5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: In thin woods and pastures or on lawns.
DISTRIBUTION: New England to the District of Columbia.
EXSICCATI: Shear, N. Y. Fungi *11*.

6. **Pleuropus Melilotus** (Berk. & Curt.) Murrill.

Agaricus Melilotus Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 290. 1859.
Clitopilus Melilotus Sacc. Syll. Fung. **5**: 703. 1887.

Pileus convex, centrally depressed, 5 cm. broad; surface smooth, glabrous, margin incurved; context having a strong odor of melilot when dry; lamellae decurrent, broad, thin; spores irregular, 8 μ; stipe subequal, striate, fibrillose, 6 cm. long, 8 mm. thick.

TYPE LOCALITY: New England.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

7. **Pleuropus prunulus** (Scop.) Murrill.

Agaricus prunulus Scop. Fl. Carn. ed. 2. **2**: 437. 1772.
Clitopilus prunulus Quél. Champ. Jura Vosg. 87. 1872.

Pileus fleshy, compact, at first convex and regular, becoming repand, 5–10 cm. broad; surface dry, pruinose, white or cinereous-white; context white, unchangeable, with a pleasant, farinaceous odor; lamellae deeply decurrent, subdistant, flesh-colored; spores subellipsoid, pointed at each end, 10–11 × 5–6 μ; stipe solid, naked, striate, white, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In woods.

DISTRIBUTION: Canada to Alabama and west to Wisconsin; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 14, f. 1–6;* Atk. Stud. Am. Fungi ed. 1. *f. 135;* ed. 2. *f. 138;* Cooke, Brit. Fungi *pl. 322 (343);* Fries, Sv. Aetl. Svamp. *pl. 19;* Gill. Champ. Fr. *pl. 270 (146);* Hard, Mushr. *f. 200;* Hussey, Ill. Brit. Myc. **2**: *pl. 47;* Schaeff. Fung. Bavar. *pl. 78* (as *Agaricus albellus*); Sow. Engl. Fungi *pl. 143.*
EXSICCATI: Herpell, Präp. Hutpilze *21, 40;* Rav. Fungi Car. **1**: *2* (as *Agaricus carneo-albus*); D. Sacc. Myc. Ital. *1613.*

8. **Pleuropus obesus** (Batsch) Murrill.

Agaricus obesus Batsch, Elench. Fung. Contin. **2**: 89. 1789.
Agaricus orcellus Bull. Champ. Fr. *pl. 573, f. 1;* hyponym. 1791; Pers. Syn. Fung. 473. 1801.
Clitopilus orcellus Quél. Champ. Jura Vosg. 87. 1872.

Pileus fleshy, soft, plane or slightly depressed, often irregular, 5–10 cm. broad; surface even when young, slightly silky, somewhat viscid when moist, white or yellowish-white; context white, the taste and odor farinaceous; lamellae deeply decurrent, crowded, whitish, becoming flesh-colored; spores ellipsoid, 8.5–10 × 5 μ; stipe short, solid, flocculose, often eccentric, white, thickened at the apex, 2–6 cm. long, 5–8 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In pastures and open places.
DISTRIBUTION: Canada to Alabama in the eastern United States; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 14, f. 7–11;* Batsch, Elench. Fung. *f. 216;* Bull. Herb. Fr. *pl. 573, f. 1;* Cooke, Brit. Fungi *pl. 323 (344);* Fries, Sv. Aetl. Svamp. *pl. 20;* Gill. Champ. Fr. *pl. 271 (145);* Hard, Mushr. *f. 201;* Hussey, Ill. Brit. Myc. **1**: *pl. 78;* Pat. Tab. Fung. **1**: *f. 427;* Vitt. Descr. Funghi Mang. *pl. 12, f. 2.*
EXSICCATI: Sydow, Myc. Mar. *1002.*

9. **Pleuropus noveboracensis** (Peck) Murrill.

Agaricus noveboracensis Peck, Ann. Rep. N. Y. State Cab. **23**: 89. 1872.
Clitopilus noveboracensis Sacc. Syll. Fung. **5**: 702. 1887.

Pileus thin, convex, becoming expanded or slightly depressed, gregarious or cespitose, 2.5–5 cm. broad; surface rimose-areolate or concentrically rivulose, sometimes obscurely zonate, dingy-white, the disk often tinged with reddish-yellow or rusty hues when moist, margin often undulate, clothed when fresh and moist with a film of interwoven, webby, white fibrils; context having a farinaceous odor and a bitter, unpleasant taste; lamellae narrow, crowded, adnate to deeply decurrent, some of them forked, white, becoming dingy, tinged with yellow or flesh-color; spores globose, 4–5 μ; stipe equal, solid, concolorous, the mycelium white, often forming white, branching, root-like fibers, 2.5–5 cm. long, 2–6 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: In woods and pastures.
DISTRIBUTION: Maine to North Carolina and west to Ohio.
ILLUSTRATION: Hard, Mushr. *f. 204.*

10. **Pleuropus Seymourianus** (Peck) Murrill.

Agaricus Seymourianus Peck, Ann. Rep. N. Y. State Mus. 24: 66. 1872.
Clitopilus Seymourianus Sacc. Syll. Fung. 5: 703. 1887.

Pileus fleshy, thin, broadly convex or slightly depressed, 2.5–6.5 cm. broad; surface even, pruinose, whitish with a dark-lilac tint, margin sometimes lobed; lamellae narrow, crowded, decurrent, some of them forked at the base, whitish with a pale-flesh-colored tint; spores minute, globose or nearly so, 3–4 μ long; stipe equal, silky-fibrillose, hollow, 3.5–6.5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

11. **Pleuropus depressus** (Clements) Murrill.

Orcella depressa Clements, Bot. Surv. Neb. **4**: 21. 1896.
Clitopilus depressus Sacc. Syll. Fung. **14**: 128. 1899.

Pileus plano-convex or depressed at the center, submembranous, 0.7–1.5 cm. broad; surface glabrous, even, ochraceous, darker at the center; lamellae decurrent, subdistant,

light-cinnamon-colored; spores irregularly ellipsoid, pale-rosy, 8–10 × 4–5 μ; stipe short, solid, glabrous, white, thickened toward both ends, 1.5–2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Bellevue, Nebraska.
HABITAT: On fallen leaves.
DISTRIBUTION: Known only from the type locality.

12. **Pleuropus albogriseus** (Peck) Murrill.

Agaricus albogriseus Peck, Ann. Rep. N. Y. State Mus. **31**: 33. 1879.
Clitopilus albogriseus Sacc. Syll. Fung. **5**: 703. 1887.

Pileus firm, convex or slightly depressed at the center, 1.2–2.5 cm. broad; surface smooth, pale-gray; context having a farinaceous odor; lamellae moderately crowded, adnate or slightly decurrent, grayish, becoming flesh-colored; spores angular, irregular, 10–12.5 × 7.5 μ; stipe solid, concolorous, 2.5–7 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and Massachusetts.

13. **Pleuropus subcinereus** Murrill, sp. nov.

Pileus thin, convex, deeply umbilicate, gregarious or subcespitose, 2–3 cm. broad; surface dry, smooth, minutely fibrillose, uniformly pale-cinereous, margin entire, concolorous, not striate, inflexed; context with mild taste; lamellae long-decurrent, arcuate, distant, white to dirty-pink, entire and concolorous on the edges; spores ellipsoid, angular, obliquely apiculate, uniguttulate, rose-colored, 8–10 × 5–7 μ; stipe often compressed, equal, smooth, subglabrous, concolorous, 2.5–4 cm. long, 2–4 mm. thick.

Type collected in soil at Redding, Connecticut, August 26, 1902, *F. S. Earle 1235* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

14. **Pleuropus cinereicolor** Murrill, sp. nov.

Pileus rather thin, regular, convex to expanded, depressed or slightly umbilicate, solitary, 4 cm. broad; surface smooth, subglabrous, uniformly pale-cinereous, margin entire, concolorous, not striate, inflexed; lamellae short-decurrent, crowded, narrow, pallid to salmon-colored; spores angular, rose-colored, 8–9 × 7 μ; stipe cylindric, equal, smooth, glabrous, concolorous, hollow, 5 cm. long, 5 mm. thick.

Type collected on the ground in moist mixed woods at West Park, New York, August 8, 1903, *F. S. Earle 1808* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

15. **Pleuropus murinus** Murrill, sp. nov.

Pileus small, rather thin, convex to expanded, abruptly and deeply umbilicate, regular in shape, gregarious, about 2 cm. broad; surface smooth, dry, pubescent or finely scabrous, uniformly mouse-colored; lamellae short-decurrent, of medium breadth, crowded, pallid to salmon-colored, entire and concolorous on the edges; spores ellipsoid, angular, rose-colored, obliquely apiculate, uniguttulate, 8 × 5 μ; stipe short, fleshy, subequal, smooth, hoary, solid, about 1.5 cm. long, 2–3 mm. thick.

Type collected in moist soil among mosses, in deciduous woods at Blacksburg, Virginia, July 27–August 3, 1904, *W. A. Murrill 428* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

16. **Pleuropus washingtoniensis** (Braendle) Murrill.

Clitopilus washingtoniensis Braendle; Peck, Bull. N. Y. State Mus. 150: 52. 1911.

Pileus thin, broadly convex, nearly plane or centrally depressed, gregarious or cespitose, 1.6–2.5 cm. broad; surface glabrous, at first bluish, soon pale-purple or mauve, margin undulate; context white, the taste mild; lamellae narrow, crowded, decurrent, slightly tinged with pink; spores ellipsoid, 6–7 × 4–5 μ; stipe short, central, eccentric, or almost lateral, equal or tapering downward, fibrillose and longitudinally rimulose, solid, brownish, 1–2 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Stanley Court, Washington, D. C.
HABITAT: On lawns.
DISTRIBUTION: Known only from the type locality.

17. **Pleuropus magnisporus** Murrill, sp. nov.

Pileus small, irregular, convex to depressed, cespitose or gregarious, reaching 2 cm. broad; surface dry, subglabrous, not polished, uneven, not striate, uniformly very pale avellaneous, margin concolorous, irregular, often lacerate; lamellae adnate to short-decurrent, plane, rather broad and distant, white to salmon-colored; spores very large, oblong-ellipsoid, nodulose or slightly angular, more or less truncate, uniguttulate, rose-colored, 14–16 × 8–9 μ; stipe short, tapering downward, smooth, glabrous, fleshy, pallid, 1 cm. long, 2–4 mm. thick.

Type collected on a manured lawn at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 49* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

18. **Pleuropus unitinctus** (Peck) Murrill.

Agaricus unitinctus Peck, Ann. Rep. N. Y. State Mus. **38**: 86. 1885.
Clitopilus unitinctus Sacc. Syll. Fung. 5: 705. 1887.

Pileus thin, submembranous, flexible, convex or nearly plane, centrally depressed or umbilicate, 1–3.5 cm. broad; surface glabrous, subshining, often concentrically rivulose, grayish or grayish-brown; context whitish or grayish-white, the odor obsolete, the taste mild; lamellae narrow, moderately crowded, adnate or slightly decurrent, concolorous; spores ellipsoid, 7.5 × 5 μ; stipe slender, straight or flexuous, subtenacious, equal, slightly pruinose, grayish-brown, with a close, white, mycelioid tomentum at the base and white, root-like fibers of mycelium penetrating the soil, about 2.5 cm. long and 2 mm. thick.

TYPE LOCALITY: Karner, New York.
HABITAT: In woods of pine or balsam.
DISTRIBUTION: Northern New York.

19. **Pleuropus socialis** (Peck) Murrill.

Clitopilus socialis Peck, Bull. N. Y. State Mus. **5**: 648. 1899.

Pileus thin, convex, deeply umbilicate, closely gregarious, 1–2 cm. broad; surface grayish-brown; lamellae thin, moderately crowded, decurrent, concolorous when young, grayish-incarnate when mature; spores irregular, uninucleate, subglobose, 7.5–10 × 6–7.5 μ; stipe equal, stuffed or hollow, concolorous or a little paler, 1.2–2.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Delmar, New York.
HABITAT: Under pine and hemlock trees.
DISTRIBUTION: Known only from the type locality.

20. **Pleuropus micropus** (Peck) Murrill.

Agaricus micropus Peck, Ann. Rep. N. Y. State Mus. **31**: 33. 1879.
Clitopilus micropus Sacc. Syll. Fung. **5**: 705. 1887.

Pileus thin, fragile, convex or centrally depressed, umbilicate, 1.2–3.5 cm. broad; surface silky, gray, often with one or two narrow zones on the margin; context having a farinaceous taste and odor; lamellae rather narrow, crowded, adnate or slightly decurrent, gray, becoming salmon-colored with age; spores angular, uninucleate, salmon-colored, 7.5–10 × 6–7.5 μ; stipe short, solid or with a slight cavity, often slightly thickened at the apex, pruinose, gray, with a white, mycelioid tomentum at the base, reaching 2.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Ticonderoga, New York.
HABITAT: On the ground under trees.
DISTRIBUTION: Vermont and New York.
ILLUSTRATIONS: Bull. N. Y. State Mus. **10**: *pl. 78, f. 1–12*.

21. **Pleuropus squamulosus** (Peck) Murrill.

Clitopilus squamulosus Peck, Bull. N. Y. State Mus. 105: 16. 1906.

Pileus thin, nearly plane, deeply umbilicate, 2.5–3.5 cm. broad; surface floccose-squamulose, especially at the center, grayish-brown and shining; context whitish; lamellae crowded, adnate or slightly decurrent, tinged with flesh-color; spores subquadrate, angular, flesh-colored, 12.5 μ broad, with a large shining nucleus; stipe long, slightly tapering upward, hollow,

fibrous-striate and colored like or a little paler than the pileus in the upper part, even and white toward the base, 7.5–10 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Bolton Landing, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 105: *pl. S, f. 5–8.*

22. **Pleuropus abortivus** (Berk. & Curt.) Murrill, Mycologia **3**: 280. 1911.

Agaricus abortivus Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 289. 1859.
Clitopilus abortivus Sacc. Syll. Fung. **5**: 701. 1887.

Pileus of developed form fleshy, firm, convex to nearly plane or slightly depressed, usually entire on the margin, gregarious or cespitose, 5–10 cm. broad, the hymenophores very commonly represented by subglobose, aborted masses of cellular tissue 3–6 cm. in diameter; surface of developed form dry, silky-tomentose, becoming glabrous, gray or grayish-brown; context white, with farinaceous odor and taste; lamellae adnate, crowded, thin, strongly decurrent, whitish or pale-grayish, changing to salmon-colored; spores angular, uniguttulate, salmon-colored, 8.5–10 × 6–7.5 μ; stipe subequal, solid, slightly flocculose, longitudinally striate, concolorous or paler than the pileus, 3.5–8 cm. long, 5–12 mm. thick.

TYPE LOCALITY: New England.
HABITAT: On rich earth or much decayed wood in deciduous and coniferous woods.
DISTRIBUTION: Canada to Alabama and west to Wisconsin; also in Jalapa and the Tepeite Valley, Mexico.
ILLUSTRATIONS: Bull. N. Y. State Mus. **10**: *pl. 78, f. 13–19;* Hard, Mushr. *f. 202, 203;* McIlv. Am. Fungi ed. *2. pl. 63, f. 1–3;* Mycologia **4**: *pl. 56, f. 12.*
EXSICCATI: Barth. Fungi Columb. *4517;* Shear, N Y. Fungi *106.*

23. **Pleuropus pascuensis** (Peck) Murrill.

Agaricus pascuensis Peck, Ann. Rep. N. Y. State Mus. **39**: 39. 1887.
Clitopilus pascuensis Peck, Ann. Rep. N. Y. State Mus. **42**: 41. 1889.

Pileus fleshy, compact, centrally depressed, solitary or gregarious, 5–7.5 cm. broad; surface glabrous, reddish or pale-alutaceous, the cuticle of the disk cracking into minute areas; context having a farinaceous taste; lamellae rather narrow, crowded, decurrent, whitish, becoming flesh-colored; spores subellipsoid, pale-incarnate, 7.5–10 × 5–6 μ; stipe short, equal or tapering downward, solid, glabrous, concolorous, 1.5–3.5 cm. long, 8–12 mm. thick.

TYPE LOCALITY: Day, Saratoga County, New York.
HABITAT: In pastures.
DISTRIBUTION: Known only from the type locality.

24. **Pleuropus irregularis** (Peck) Murrill.

Clitopilus irregularis Peck, Bull. Torrey Club **26**: 65. 1899.

Pileus thin, irregular, sometimes eccentric, nearly plane, usually cespitose, 2.5 cm. broad; surface glabrous, reddish-brown; context white; lamellae rather broad, subdistant, decurrent, whitish, becoming tinged with flesh-color; spores ellipsoid, pale-flesh-colored, 6–7 × 3–4 μ; stipe short, solid or spongy within, externally fibrous, concolorous, about 2.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: London, Ontario, Canada.
HABITAT: Manured, ground.
DISTRIBUTION: Known only from the type locality.

25. **Pleuropus erythrosporus** (Peck) Murrill.

Clitopilus erythrosporus Peck, Ann. Rep. N. Y. State Mus. **41**: 64. 1888.

Pileus thin, hemispheric or strongly convex, 2.5–5 cm. broad; surface glabrous or merely pruinose, grayish-incarnate; context whitish with an incarnate tint, the taste farinaceous; lamellae narrow, crowded, arcuate, strongly decurrent, concolorous; spores ellipsoid, rosy-red, 5 × 3–4 μ; stipe equal or slightly tapering upward, hollow, slightly pruinose at the apex, concolorous, 2.5–3.5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On decayed wood and among fallen leaves in woods.
DISTRIBUTION: New York.

26. **Pleuropus Leptonia** (Peck) Murrill.

Clitopilus Leptonia Peck, Bull. N. Y. State Mus. 167: 39. 1913.

Pileus thin, conic or convex, umbilicate, gregarious, 2.5–3.5 cm. broad; surface hygrophanous, squamulose on and near the broad umbilicus, chestnut-colored and striatulate on the margin when moist, black on the umbilicus; lamellae broad, distant, white, becoming pink, broadly sinuate-adnate or decurrent, sometimes transversely venose; spores subglobose, angular, uninucleate, 10–12 × 8–10 μ; stipe slender, equal or slightly narrowed upward, fibrillose, straight, stuffed or hollow, brown, becoming darker with age, with a copious, white, mycelioid tomentum at the base, 5–8 cm. long, 1–3 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: Low ground under trees.
DISTRIBUTION: Known only from the type locality.

27. **Pleuropus sphaerosporus** (Peck) Murrill.

Clitopilus sphaerosporus Peck, Bull. Torrey Club **31**: 179. 1904.

Pileus fleshy but thin, nearly plane, umbonate or slightly depressed at the center, 1–2.5 cm. broad; surface dry, minutely tomentose-pubescent, dark-gray or blackish-brown, margin involute or decurved; context white; lamellae thin, narrow, crowded, unequal, slightly decurrent, whitish, faintly tinged with pink; spores pale-pink, globose, uninucleate, 5–6 μ; stipe equal or slightly tapering upward, solid, firm, concolorous, with a white, mycelioid tomentum at the base, 2–4 cm. long, 2–4 mm. thick.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: Among fallen leaves in ravines.
DISTRIBUTION: Known only from the type locality.

28. **Pleuropus adnatifolius** Murrill, sp. nov.

Pileus small, convex, not expanding, gregarious, 1–1.5 cm. broad; surface smooth, dry, glabrous, estriate, uniformly milk-white, margin entire, concolorous, incurved; lamellae adnate, narrow, arcuate, distant, white to pale-rose-colored, entire and concolorous on the edges; spores broadly ellipsoid, angular, apiculate, uniguttulate, rose-colored, 8–10 × 6–7 μ; stipe rather slender, fleshy, solid, smooth, glabrous, white, about 3 cm. long, 2–3 mm. thick.

Type collected in sand and gravel by the roadside at Preston's Ravine, near Palo Alto, California, November 25, 1911, *W. A. Murrill & L. R. Abrams 1199* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

29. **Pleuropus avellaneus** Murrill, sp. nov.

Pileus rather thin and firm, umbilicate to subinfundibuliform, regular, gregarious, abundant, 2.5–3.5 cm. broad; surface smooth, dry, glabrous, somewhat shining, uniformly avellaneous; context with farinaceous taste but no odor; lamellae truly decurrent, narrow, arcuate, subcrowded, whitish-avellaneous to pinkish, entire and concolorous on the edges; spores oblong-ellipsoid with rounded ends, smooth, rose-colored, 7–9 × 5–6 μ; stipe subfleshy with a cartilaginous rind, hollow, equal, often curved, smooth, glabrous, not shining, avellaneous, 3–5 cm. long, 2–3 mm. thick.

Type collected on the ground in a cultivated field at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 412* (herb. N. Y. Bot. Gard.).
HABITAT: On the ground in fields or woods.
DISTRIBUTION: Vicinity of Seattle, Washington.

30. **Pleuropus Earlei** Murrill, Mycologia **3**: 280. 1911.

Clitopilus Earlei Murrill, Mycologia 4: 332. 1912.

Pileus thin, firm, convex to subexpanded, umbilicate, gregarious, 1–2 cm. broad; surface pure-white, glabrous, margin entire, inrolled when young; lamellae short-decurrent, subcrowded, narrow, irregular, pure-white to pink; spores angular, 7 × 5–6 μ; stipe short, subequal, often flattened, pure-white, fistulose, minutely pruinose to glabrous, surrounded at the base with whitish mycelium, 2–3 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a banana field.
DISTRIBUTION: Santiago de las Vegas, Cuba.

DOUBTFUL AND EXCLUDED SPECIES

Clitopilus cancrinus (Fries) Quél. Champ. Jura Vosg. 227. 1872. (*Agaricus cancrinus* Fries, Epicr. Myc. 150. 1838.) Reported by Peck from New York and by Ellis from New Jersey, but no satisfactory American specimens have been seen.

Clitopilus carneo-albus (With.) Gill. Champ. Fr. 409. 1876. (*Agaricus carneo-albus* With. Brit. Pl. ed. 4. **4**: 167. 1801.) Reported by Ravenel, Peck, Miss White, and others, but none of the specimens seen appear to be correctly determined.

Clitopilus connissans Peck, Ann. Rep. N. Y. State Mus. **41**: 64. 1888. This species was transferred to the genus *Psilocybe* by Peck in Bull. N. Y. State Mus. 122: 131. 1908.

Clitopilus Davisii Peck, Bull. Torrey Club **36**: 153. 1909. Specimens collected by Murrill and House in North Carolina show this species to belong to the genus *Entoloma*.

Clitopilus popinalis (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 270. 1879. (*Agaricus popinalis* Fries, Syst. Myc. **1**: 194. 1821.) Reported from New York by Peck and said to occur also in other parts of North America. In describing *Clitopilus abortivus*, Berkeley said it was near *C. popinalis*, which is also frequently abortive, but distinguished by its downy pileus and the gills not being gray. Fries' figures of *C. popinalis* represent a large, thick, and umbonate plant which is very dark in color both without and within. It is probable that *Pleuropus noveboracensis* and *P. abortivus* will account for most of the specimens in North America determined as *Clitopilus popinalis*.

Clitopilus stilbocephalus (Berk. & Br.) Sacc. Syll. Fung. **5**: 705. 1887. (*Agaricus stilbocephalus* Berk. & Br. Ann. Mag. Nat. Hist. V. **3**: 205. 1879.) Reported from New York by Peck. See *Pleuropus Underwoodii*.

Clitopilus undatus (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 271. 1879. (*Agaricus undatus* Fries, Epicr. Myc. 149. 1838.) Reported from Greenland and Minnesota.

57. **LEPISTA** (Fries) W. G. Sm. Clavis Agar. 26. 1870.

Paxillus § *Lepista* Fries, Epicr. Myc. 315. 1838.

Hymenophore large, fleshy, putrescent; surface smooth, not viscid, margin at first involute; lamellae adnexed or slightly decurrent; spores rosy-ochraceous in mass, not angular; stipe central, fleshy; veil none.

Type species, *Paxillus Lepista* Fries.

Stipe 4–13 mm. thick.
- Pileus pale-violet to avellaneous, fuliginous on the disk; odor not characteristic. 1. *L. tarda.*
- Pileus uniformly grayish; odor strong, farinaceous-rancid. 2. *L. panaeola.*

Stipe 15–30 mm. thick.
- Hymenophores solitary or gregarious; odor and taste pleasant. 3. *L. personata.*
- Hymenophores densely cespitose; odor and taste strong and disagreeable. 4. *L. graveolens.*

1. **Lepista tarda** (Peck) Murrill.

Agaricus sordidus Fries, Syst. Myc. **1**: 51. 1821. Not *A. sordidus* Dicks. 1785.
Tricholoma sordidum Quél. Champ. Jura Vosg. 47. 1872.
Clitocybe tarda Peck, Bull. Torrey Club **24**: 140. 1897.
Clitopilus tardus Peck, Ann. Rep. N. Y. State Mus. **54**: 167. 1901.
Rhodopaxillus sordidus Maire, Ann. Myc. **11**: 338. 1913.
Melanoleuca sordida Murrill, Mycologia **6**: 3. 1914.
Lepista domestica Murrill, Mycologia **7**: 106. 1915.

Pileus thin, convex to plane or slightly depressed, subumbonate at times, often irregular, gregarious or cespitose, 3–7 cm. broad; surface smooth, glabrous, pale-violet to avellaneous with ochraceous hues, usually fuliginous on the disk, margin naked, involute when young; context violaceous to whitish, mild, edible; lamellae sinuate to slightly decurrent, narrow, crowded, concolorous when young, fading with age, the edges often eroded; spores ellipsoid, smooth, pale-rosy-ochraceous in mass, 7–8 × 4–5 μ; stipe eccentric at times, equal, firm, concolorous, glabrous, stuffed or hollow, 3–8 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Lynn, Mass.
HABITAT: About manure piles and in manured ground; often in greenhouses.
DISTRIBUTION: Temperate North America; also in Europe.
ILLUSTRATIONS: Bull. N. Y. State Mus. 116: *pl. 104* (as *Tricholoma nudum*); Bull. N. Y. State Mus. 131: *pl. 115;* Cooke, Brit. Fungi *pl. 100* (*125*); Fries, Ic. Hymen. *pl. 45, f. 1;* Mycologia **6**: *pl. 113, f. 4.*

2. **Lepista panaeola** (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 481. 1879.

Agaricus ectypus Secr. Mycogr. Suisse 2: 86. 1833. Not *A. ectypus* Fries, 1821.
Agaricus panaeolus Fries, Epicr. Myc. 49. 1838.
Tricholoma panaeolum Quél. Champ. Jura Vosg. 45. 1872.
Gyrophila nimbata Quél. Fl. Myc. Fr. 271. 1888.
Rhodopaxillus panaeolus Maire, Ann. Myc. **11**: 338. 1913.

Pileus fleshy, convex to expanded, gibbous, sometimes eccentric, cespitose, 4–9 cm. broad; surface whitish-gray, grayish-variegated and dull-flesh-colored when young; context gray, the odor strong, farinaceous-rancid, the taste mild; lamellae mostly crowded, sometimes narrow and sometimes broad, easily separable from the hymenophore, sinuate-uncinate, sometimes decurrent, from whitish-gray to lurid-flesh-colored or rufescent; spores ellipsoid, slightly tuberculose, hyaline, dull-rosy in mass, 5.5–6 × 3.5 μ; stipe solid, gray to grayish-fuscous within, subequal, fibrillose, subfurfuraceous at the apex, 2–6 cm. long, 5–13 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In grassy places in the open or near woods; rarely in woods.
DISTRIBUTION: Canada to North Carolina; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 36, f. 2.*
EXSICCATI: Barth. Fungi Columb. *4733.*

3. **Lepista personata** (Fries) W. G. Smith, Clavis Agar. 37. 1870.

?*Agaricus nudus* Bull. Herb. Fr. *pl. 439.* 1789.
Agaricus violaceus Sow. Engl. Fung. *pl. 209.* 1799. Not *A. violaceus* Schaeff. 1774.
Agaricus bicolor Pers. Syn. Fung. 281. 1801. Not *A. bicolor* Batsch, 1783.
Agaricus personatus Fries, Obs. Myc. **2**: 89. 1818.
Tricholoma personatum Quél. Champ. Jura Vosg. 45. 1872.
Entoloma personatum Peck, Ann. Rep. N. Y. State Mus. **54**: 166. 1901.
Rhodopaxillus personatus Maire, Ann. Myc. **11**: 338. 1913.

Pileus compact, becoming soft, thick, convex or plane, obtuse, regular, solitary or gregarious, 5–12 cm. broad; surface moist, glabrous, variable in color, generally pallid or cinereous tinged with violet or lilac, sometimes wholly violet, margin at first involute and villose-pruinose, becoming glabrous; context whitish, pleasant to the taste, edible; lamellae broad, crowded, rounded behind, free, violaceous, becoming sordid-whitish or fuscous; spores ellipsoid, smooth, sordid-white, dull-pinkish in mass, 7.5–10 × 4–5 μ; stipe generally thick, often bulbous, solid, fibrillose or villose-pruinose, whitish or concolorous, 3–7 cm. long, 1.5–3 cm. thick.

TYPE LOCALITY: Europe.
HABITAT: In open woods or among long grass in fields.
DISTRIBUTION: Temperate North America; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 22;* Cooke, Brit. Fungi *pl. 66 (113);* Fries, Sv. Aetl. Svamp. *pl. 57;* Hussey, Ill. Brit. Myc. **2**: *pl. 40;* N. Marshall, Mushr. Book *pl. 16;* Mycologia **2**: *pl. 19, f. 1;* Sow. Engl. Fungi *pl. 209.*
EXSICCATI: Sydow, Myc. Mar. *2305, 3403;* Thüm. Fungi Austr. *1004;* Herpell, Präp. Hutpilze *63.*

4. **Lepista graveolens** (Peck) Murrill.

Entoloma graveolens Peck, Ann. Rep. N. Y. State Mus. **53**: 844. 1900.

Pileus thick, firm, brittle, convex, often irregular, densely clustered and forming rings, 5–10 cm. broad; surface polished, glabrous or slightly flocculent on the margin, whitish with a violaceous tint; context white, the taste unpleasant, disagreeable, the odor strong, disagreeable; lamellae crowded, narrow, adnexed or slightly sinuate, sometimes short-decurrent, white to pale-salmon-colored; spores ellipsoid, uniguttulate, pale-salmon-colored, 6–7.5 × 4 μ; stipe short, stout, white, solid, downy above, the base bulbous and white-tomentose, 4–10 cm. long, 16–24 mm. thick.

TYPE LOCALITY: Meadowdale, New York.
HABITAT: Black muck soil in low woods.
DISTRIBUTION: New York.
ILLUSTRATION: Ann. Rep. N. Y. State Mus. **53**: *pl. D, f. 1–7.*

58. **ENTOLOMA** (Fries) Quél. Champ. Jura Vosg. 83. 1872.

Agaricus § *Entoloma* Fries, Epicr. Myc. 143. 1838.
Rhodophyllus Quél. Ench. Fung. 57. 1886.

Pileus fleshy, putrescent, solitary or gregarious; lamellae sinuate or adnexed; spores pink or salmon-colored, usually angular; stipe central, fleshy; veil none.

Type species, *Entoloma lividum* (Bull.) Quél.

Pileus cuspidate; yellow, yellowish, or salmon-colored.
Pileus salmon-colored. — 1. *E. salmoneum.*
Pileus some shade of yellow.
Stipe 2–4 mm. thick.
Pileus pale-yellow; lamellae pale-yellow. — 2. *E. Murraii.*
Pileus yellow or smoky-yellow, sometimes tinged with green; lamellae whitish. — 3. *E. luteum.*
Stipe 4–8 mm. thick. — 4. *E. alutaceum.*
Pileus not as above.
Pileus 3 cm. or less broad.
Pileus white, pallid, or yellowish.
Pileus white or pallid.
Surface of pileus striate; stipe 2 cm. long. — 5. *E. parvulum.*
Surface of pileus not striate; stipe 3–5 cm. long. — 6. *E. subsericellum.*
Pileus pale-rosy-isabelline.
Pileus depressed. — 7. *E. pallidum.*
Pileus conspicuously umbonate. — 8. *E. tortipes.*
Pileus pale-yellowish-ochraceous. — 9. *E. subtruncatum.*
Pileus pale-yellow when young, becoming reddish-brown with age. — 10. *E. variabile.*
Pileus some shade of violet. — 11. *E. violaceum.*
Pileus avellaneous, grayish-brown, smoky-white, or murinous; sometimes darker at the center.
Stipe 2–3.5 cm. long.
Pileus umbilicate. — 12. *E. suave.*
Pileus hemispheric. — 13. *E. minus.*
Pileus umbonate. — 14. *E. murinum.*
Stipe 4–6 cm. long.
Stipe melleous; species growing on dead wood. — 15. *E. adirondackense.*
Stipe pallid; species growing among humus.
Surface of pileus glabrous, shining.
Stipe 3 mm. thick. — 16. *E. tenuipes.*
Stipe 4–5 mm. thick. — 17. *E. fumosialbum.*
Surface of pileus subfloccose, hygrophanous. — 18. *E. pallidibrunneum.*
Pileus fuliginous, dark-brown, or blackish.
Stipe 2–5 cm. long.
Surface of pileus glabrous.
Pileus not umbonate. — 19. *E. modestum.*
Pileus umbonate.
Stipe white. — 20. *E. diminutivum.*
Stipe subfuliginous. — 21. *E. fuliginosum.*
Surface of pileus minutely scabrous, fibrillose, or subsquamulose.
Pileus 1–2 cm. broad. — 22. *E. scabrinellum.*
Pileus 2–3 cm. broad.
Lamellae deeply sinuate; species growing on decayed wood. — 23. *E. fibrillosum.*
Lamellae adnate; species growing in swamps. — 24. *E. mirabile.*
Stipe 5–10 cm. long.
Pileus not umbonate; surface glabrous. — 25. *E. angustifolium.*
Pileus umbonate; surface fibrillose or tomentose.
Stipe purplish-brown, 5 cm. long. — 26. *E. atribrunneum.*
Stipe pale-brown, 5–10 cm. long. — 27. *E. Peckianum.*
Pileus 3–9 cm. broad.
Pileus white or whitish.
Pileus glabrous.
Stipe 5 cm. or less long. — 28. *E. flavifolium.*
Stipe 8 cm. long. — 29. *E. albidum.*
Pileus densely pubescent. — 30. *E. pubescens.*
Pileus isabelline, flavous, or melleous, sometimes darker on the disk.
Stipe 3–4 cm. long.
Pileus flavous, brownish-yellow on the umbo. — 31. *E. Burlinghamiae.*
Pileus ochraceous, without umbo. — 32. *E. Earlei.*
Stipe 5–8 cm. long.
Pileus 5 cm. or less broad.
Pileus umbonate, uniformly melleous-ochroleucous. — 33. *E. bicolor.*
Pileus not umbonate.
Stipe 5–10 mm. thick. — 34. *E. melleidiscum.*
Stipe 4–6 mm. thick. — 35. *E. Davisii.*
Pileus 5–8 cm. broad.
Pileus isabelline to pallid. — 36. *E. fragile.*
Pileus melleous, becoming dark-brown on drying. — 37. *E. melleicolor.*
Pileus avellaneous-isabelline.
Pileus not umbonate. — 38. *E. brevipes.*
Pileus distinctly umbonate. — 39. *E. inocybiforme.*
Pileus indigo-blue. — 40. *E. indigoferum.*
Pileus pinkish-gray with dull-green disk, or the coloring may be reversed. — 41. *E. viridans.*
Pileus reddish-brown; stipe very short, 2–4 cm. — 42. *E. rubribrunneum.*

Pileus avellaneous, grayish-brown, umbrinous, or pale-lead-colored.
  Stipe 2–5 cm. long.
    Stipe 3–6 mm. thick.
      Pileus striate; solitary. — 43. *E. pluteiforme.*
      Pileus not striate; gregarious to subcespitose. — 44. *E. commune.*
    Stipe 6–10 mm. thick.
      Pileus pale-lead-colored. — 45. *E. plumbeum.*
      Pileus grayish-brown.
        Surface lacerate; context with alkaline taste. — 46. *E. alcalinum.*
        Surface smooth; context with farinaceous taste. — 47. *E. griseum.*
  Stipe 5–10 cm. long.
    Stipe 2–6 mm. thick.
      Pileus not umbonate. — 48. *E. avellaneum.*
      Pileus umbonate. — 49. *E. strictius.*
    Stipe 6–10 mm. thick.
      Pileus 3–5 cm. broad.
        Stipe white. — 50. *E. rhodopolium.*
        Stipe avellaneous. — 51. *E. washingtonense.*
      Pileus 5–8 cm. broad.
        Pileus strongly umbonate, viscid. — 52. *E. Cokeri.*
        Pileus neither umbonate nor viscid. — 53. *E. Grayanum.*
Pileus dark-gray, fuliginous, or olive-brown.
  Pileus 3–5 cm. broad.
    Stipe 2–4 mm. thick.
      Pileus brownish when moist, paler when dry; species found in woods or pastures. — 54. *E. sericiceps.*
      Pileus smoky-black; species found in swamps. — 55. *E. fumosonigrum.*
    Stipe 4–8 mm. thick. — 56. *E. nigricans.*
  Pileus 5–10 cm. broad.
    Surface of pileus imbricate-squamulose. — 57. *E. subjubatum.*
    Surface of pileus glabrous.
      Pileus dark-gray to hair-brown or olive-brown; species known only from Ohio. — 58. *E. subcostatum.*
      Pileus gray or lead-colored to almost black; species known only from California. — 59. *E. ferruginans.*
Pileus 10 cm. or more broad.
  Stipe 1.5–3 cm. thick.
    Pileus white with a yellowish tint; stipe bulbous. — 60. *E. subsinuatum.*
    Pileus yellowish-white, becoming brown with age. — 61. *E. grande.*
    Pileus yellowish-brown, darker at the center. — 62. *E. Whiteae.*
  Stipe 6 cm. thick. — 63. *E. giganteum.*

1. **Entoloma salmoneum** (Peck) Sacc. Syll. Fung. **5**: 693. 1887.

Agaricus salmoneus Peck, Ann. Rep. N. Y. State Mus. **24**: 65. 1872.

Pileus thin, conic or campanulate, subacute or with a minute papilla or small cusp at the apex, gregarious, 1.5–3 cm. broad; surface glabrous, moist, salmon-colored, margin sometimes uneven or lobed; lamellae broad, subdistant, ventricose, salmon-colored; spores subglobose, angular, 10–12.5 μ in diameter; stipe slender, equal, glabrous, hollow, concolorous, 7.5–15 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Damp ground in dense woods, especially under spruce and balsam fir trees or among mosses.
DISTRIBUTION: New England to Ohio.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **24**: *pl. 4, f. 6–9;* Hard, Mushr. *f. 199.*
EXSICCATI: Ellis, N. Am. Fungi *301.*

2. **Entoloma Murraii** (Berk. & Curt.) Sacc. Syll. Fung. **14**: 127. 1899.

Agaricus Murraii Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 289. 1859.
Agaricus cuspidatus Peck, Ann. Rep. N. Y. State Mus. **24**: 64. 1872. Not *A. cuspidatus* Bolt. 1788.
Entoloma cuspidatum Sacc. Syll. Fung. **5**: 688. 1887.

Pileus thin, conic or campanulate, with a distinct cusp at the apex, 2–5 cm. broad; surface moist, shining, glabrous, pale-yellow, margin thin, striate, exceeding the lamellae, often irregular or slightly lobed; lamellae ascending, broad, subdistant, narrowed toward the stipe, adnexed, often eroded or subdenticulate on the edges, pale-yellow, becoming flesh-colored; spores subglobose, angular, 10–12.5 μ in diameter; stipe equal, hollow, glabrous, slightly fibrous, concolorous, 7.5–15 cm. long, 2–4 mm. thick.

TYPE LOCALITY: New England.
HABITAT: Swamps and mossy places.
DISTRIBUTION: Maine to Alabama; also in Jamaica and British Honduras.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **24**: *pl. 2, f. 14–18.*

3. **Entoloma luteum** Peck, Ann. Rep. N. Y. State Mus. **54**: 146. 1901.

Pileus thin, conic or subcampanulate, obtuse or subumbonate to cuspidate, 2–4 cm. broad; surface moist, sometimes squamulose at the apex, yellow or smoky-yellow, a little paler after the escape of the moisture, sometimes tinged with green; lamellae ascending, moderately crowded, broad, whitish, becoming pale-salmon-colored; spores subquadrate, angular, 10–12.5 μ in diameter; stipe slender, equal, hollow, slightly fibrillose-striate, concolorous, with white mycelium at the base, 7.5–10 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Floodwood, Franklin County, New York.
HABITAT: On mossy ground in woods.
DISTRIBUTION: New England to Tennessee.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **54**: *pl. F, f. 1–8*.

4. **Entoloma alutaceum** Murrill, sp. nov.

Pileus convex, cuspidate, solitary, 3–6 cm. broad; surface smooth, shining, glabrous, pale-tan-colored, margin entire to undulate or lobed, concolorous; context thin, concolorous, the taste mild; lamellae sinuate, rather broad, subdistant, white to dirty-pink, entire on the edges; spores broadly ellipsoid, irregular, decidedly angular, rose-colored, 9–11 μ; stipe equal, often curved, glabrous, shining, concolorous or paler, solid, 5–8 cm. long, 4–8 mm. thick.

Type collected in wet moss at Redding, Connecticut, August 26, 1902, *F. S. Earle 1248* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Maine, Connecticut, and New York.

5. **Entoloma parvulum** Murrill, sp. nov.

Pileus small, thin, convex to plane, not umbonate, solitary, 2–2.5 cm. broad; surface white with a pale-ashy tint, dry, pruinose to glabrous, conspicuously striate to the disk, margin entire, concolorous; lamellae sinuate, several times inserted, rather narrow, not crowded, entire on the edges, white to salmon-colored; spores broadly ellipsoid, angular, apiculate, 10 × 8 μ; stipe short, slender, equal, white, smooth, glabrous, 2 cm. long, 2 mm. thick.

Type collected in rather sterile soil in woods near the New York Botanical Garden, September 13, 1910, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

6. **Entoloma subsericellum** Murrill, sp. nov.

Pileus thin, convex, 2–3 cm. broad; surface dry, appressed-tomentose, white or pallid, margin even, projecting; context pallid, the taste mild, farinaceous; lamellae sinuate, crowded, narrow, plane, white to pink, quite dark on drying; spores angular, pink, 8–10 × 7 μ; stipe cylindric, fibrillose, pallid, dark in dried specimens, solid, 3–5 cm. long, 2–3 mm. thick.

Type collected on the ground under hemlocks at Redding, Connecticut, July, 1902, *F. S. Earle 431* (herb. N. Y. Bot. Gard.).
HABITAT: Among mosses in woods.
DISTRIBUTION: New England and New York.

7. **Entoloma pallidum** Murrill, sp. nov.

Pileus thin, fragile, expanded and depressed, gregarious or subcespitose, 3 cm. broad; surface glabrous, pallid, tinged with rosy-isabelline, margin thin, even; context mild, farinaceous; lamellae adnexed, subdistant, ventricose, rather broad, white to pale-pink; spores pale-pink, suborbicular, slightly angular, 8 × 7 μ; stipe glabrous, white, hollow, fragile, tapering downward, 4–5 cm. long, 3–5 mm. thick.

Type collected in moist woods in West Park, New York, August, 1903, *F. S. Earle 1834* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

8. **Entoloma tortipes** Murrill, sp. nov.

Pileus convex to subexpanded, with a small, conspicuous, conic umbo, rather thin and fragile, reaching 3 cm. broad; surface smooth, with a satiny gloss, rosy-isabelline, margin

concolorous, entire, sometimes splitting with age; context very thin, pallid; lamellae sinuate, of medium breadth, subcrowded, slightly ventricose and rounded behind, entire on the edges, pallid to rose-colored; spores ellipsoid, angular, uniguttulate, usually apiculate, rose-colored, 9–11 × 5–7 μ; stipe decidedly tapering upward, conspicuously twisted, smooth, glabrous, polished, white or pale-avellaneous, solid, 6–7 cm. long, 3–6 mm. thick.

Type collected on a much decayed, deciduous stump by the Bronx River in the New York Botanical Garden, August 2, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

9. **Entoloma subtruncatum** Peck, Bull. N. Y. State Mus. 157: 47. 1912.

Pileus subconic, thin, truncate or slightly umbonate, solitary or gregarious, 2–3 cm. broad; surface glabrous, hygrophanous, pale-yellowish-ochraceous and striatulate when moist, paler and subshining when dry, the pellicle separable, margin incurved; lamellae thin, broad, adnexed, moderately crowded, unequal, whitish, becoming tinged with pink; spores angular, apiculate at each end, 12–14 × 8–10 μ; stipe slender, equal or slightly attenuate upward, terete or compressed, hollow, silky-fibrillose, pale-yellow, with a whitish, mycelioid tomentum at the base, 3–8 cm. long, 2–5 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: Under pine trees.
DISTRIBUTION: Vicinity of Stow, Massachusetts.

10. **Entoloma variabile** Peck, Ann. Rep. N. Y. State Mus. **54**: 145. 1901.

Pileus thin, conic, ovate or subcampanulate, umbonate, obtuse or subumbilicate, 1.5–3 cm. broad; surface moist, slightly fibrillose, pale-yellow when young, becoming reddish-brown with age, either wholly or at the center only; lamellae ascending, rather crowded, broad in front, often eroded on the edges, white or whitish, becoming pale-salmon-colored; spores subglobose, angular, uninucleate, 10–12.5 μ; stipe long, slender, equal, hollow, slightly fibrillose-striate, whitish or pallid, sometimes becoming reddish-brown with age, often with a whitish mycelium at the base, 7.5–12.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Floodwood, Franklin County, New York.
HABITAT: In sphagnum marshes.
DISTRIBUTION: New York and Massachusetts.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **54**: *pl. F, f. 17–27.*

11. **Entoloma violaceum** Murrill.

Agaricus cyaneus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 49. 1873. Not *A. cyaneus* Bull. 1783.
Entoloma cyaneum Sacc. Syll. Fung. **5**: 692. 1887.

Pileus convex, 2–3 cm. broad; surface dry, minutely squamulose, violet or bluish-purple to brownish-violaceous; lamellae sinuate, crowded, whitish, becoming tinged with pink; spores angular, 9 × 6 μ; stipe equal or slightly thickened downward, hollow, squamulose and violaceous at the apex, white at the base, 3.5–6 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Pine Hill, New York.
HABITAT: On decaying wood or humus in woods.
DISTRIBUTION: New York and Massachusetts.

12. **Entoloma suave** Peck, Jour. Myc. **14**: 2. 1908.

Pileus thin, broadly convex, umbilicate, 2.5 cm. broad; surface glabrous, shining, grayish-brown, margin decurved; lamellae rather crowded, slightly rounded behind, adnexed, yellowish, becoming flesh-colored; spores broadly ellipsoid or subglobose,even, 6–8 × 5–6 μ; stipe equal or nearly so, glabrous, stuffed, whitish or pale-yellow, about 2.5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Ellis, Massachusetts.
HABITAT: On old stumps in swampy places.
DISTRIBUTION: Massachusetts.

13. **Entoloma minus** Peck, Bull. N. Y. State Mus. 116: 23. 1907.

Pileus very thin, subconic or hemispheric, becoming convex, 1.5–2.5 cm. broad; surface glabrous, grayish-brown, darker at the center; lamellae thin, crowded, at first ascending, sinuate, adnexed, whitish, becoming flesh-colored; spores subglobose, angular, 7.5–10 μ in diameter; stipe slender, glabrous, hollow, white, 2.5–3.5 cm. long, about 2 mm. thick.

TYPE LOCALITY: East Schaghticoke, Rensselaer County, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and Massachusetts.

14. **Entoloma murinum** Peck, Bull. Torrey Club **34**: 98. 1907.

Pileus thin, fragile, conic, convex or nearly plane, umbonate, 2–3 cm. broad; surface dry, silky in appearance, glabrous to the touch, grayish-brown or mouse-colored, margin thin, often wavy and split, striate in dried specimens; lamellae thin, crowded, sinuate, adnate, white, becoming pale-pink; spores angular, uniguttulate, often with an oblique apiculus at one end, 10–12 × 6–8 μ; stipe slender, brittle, equal or slightly tapering upward, straight or flexuous, hollow, white or whitish, becoming darker with age, 2–3.5 cm. long, 1.5–2 mm. thick.

TYPE LOCALITY: Falmouth, Massachusetts.
HABITAT: Among long grass and sphagnum.
DISTRIBUTION: Known only from the type locality.

15. **Entoloma adirondackense** Murrill, sp. nov.

Pileus small, rather thin, circular, sometimes becoming irregular, more or less umbonate, solitary, reaching 2–3 cm. broad; surface moist, glabrous, not striate, smooth, except at the center, pale-dull-avellaneous, concolorous on the umbo, margin entire, concolorous, becoming undulate with age; lamellae adnexed, several times inserted, ventricose, not crowded, soon becoming rose-colored; spores ellipsoid, conspicuously angular, uniguttulate, apiculate, rose-colored, 11–12 × 6–7 μ; stipe slender, cylindric, equal, smooth, glabrous, dull, translucent, melleous, whitish-mycelioid at the base, about 4 cm. long, 2–3 mm. thick.

Type collected on a stump in low balsam woods at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 1107* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Adirondack Mountains, New York.

16. **Entoloma tenuipes** Murrill, sp. nov.

Pileus thin, convex, sometimes slightly depressed with age, solitary, 3 cm. broad; surface dry, smooth, shining, sometimes striate and splitting, whitish-avellaneous to subfuliginous, margin concolorous, entire to undulate; context very thin, white, with farinaceous taste and no odor; lamellae sinuate, broad, slightly ventricose, subdistant, irregular, uneven on the edges; spores globose, angular, apiculate, rose-colored, 8–9 μ; stipe slender, equal, smooth, glabrous, concolorous, whitish-mycelioid at the base, 5 cm. long, 3 mm. thick.

Type collected among humus in woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 249* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York.

17. **Entoloma fumosialbum** Murrill, sp. nov.

Pileus rather thick, somewhat irregular, convex to plane or very slightly depressed, not umbonate, solitary, 3 cm. broad; surface smooth, glabrous but satiny in appearance, uniformly smoky-white, margin entire to undulate or slightly lacerate, pallid; lamellae sinuate with a decurrent tooth, broad, ventricose, crowded, white to salmon-colored, entire and concolorous on the edges; spores subglobose to broadly ellipsoid, angular, apiculate, uniguttulate, rose-colored, 7–9 × 5–7 μ; stipe equal, fleshy, glabrous, longitudinally grooved, satiny-white, 4–5 cm. long, 4–5 mm. thick.

Type collected on the ground in woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 793* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

18. **Entoloma pallidibrunneum** Murrill, sp. nov.

Pileus thin, convex to expanded, umbilicate, gregarious, 2–3 cm. broad; surface subfloccose, hygrophanous, pale-brown, margin entire, concolorous; lamellae adnexed, rather crowded, subventricose, pallid; spores broadly ellipsoid, irregular, angular, rose-colored, 9–11 μ; stipe slender, equal, hollow, pallid, farinose at the apex, whitish-mycelioid at the base, 4–6 cm. long, 3–4 mm. thick.

Type collected among humus in woods at West Park, New York, July 30, 1903, *F. S. Earle 1583* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

19. **Entoloma modestum** Peck, Bull. Torrey Club **34**: 347. 1907.

Pileus thin, campanulate or convex, obtuse, 1.5–2.5 cm. broad; surface glabrous, hygrophanous, dark-smoky-brown and striatulate when moist, isabelline or pale-grayish-brown when dry; lamellae rather broad, subdistant, adnate, at first pallid, becoming flesh-colored; spores angular, uninucleate, obliquely apiculate at one end, 10–14 × 8–9 μ; stipe slender, equal, hollow, glabrous, concolorous, 2.5–4 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: In damp, shaded places.
DISTRIBUTION: New York and Massachusetts.

20. **Entoloma diminutivum** Peck, Bull. Torrey Club **34**: 99. 1907.

Pileus thin, fragile, convex, becoming nearly plane, umbonate, 1.3–3 cm. broad; surface hygrophanous, chestnut-brown or blackish and striatulate on the margin when young or moist, becoming paler and shining when the moisture has escaped, the small umbo darker than the rest of the pileus; context having a farinaceous odor; lamellae thin, narrow, subcrowded, slightly adnexed, subventricose, white, becoming pink; spores angular, uninucleate, 10–12 × 6–8 μ; stipe fragile, equal or slightly tapering upward, glabrous, shining, white or whitish, 1.3–3 cm. long, 2 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On damp, black soil under trees.
DISTRIBUTION: Known only from the type locality.

21. **Entoloma fuliginosum** Murrill, sp. nov.

Pileus small, thin, convex to plane, umbonate, irregular in outline, solitary, 2 cm. broad; surface smooth, glabrous, shining, striate, uniformly fuliginous, the cuticle cracking radially with age, margin concolorous, undulate or folded; lamellae slightly sinuate, broad, ventricose, distant, entire on the edges, pallid to salmon-colored; spores globose, slightly angular, rose-colored, 6–8 μ; stipe short, equal, smooth, glabrous, subconcolorous, not shining, whitish-mycelioid below, 3 cm. long, 2–3 mm. thick.

Type collected among humus under balsam fir trees at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 967* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

22. **Entoloma scabrinellum** (Peck) Sacc. Syll. Fung. **5** : 693. 1887.

Agaricus scabrinellus Peck, Ann. Rep. N. Y. State Mus. **33**: 19. 1883.

Pileus thin, convex or nearly plane, papillate or with a small umbo, 1.2–2 cm. broad; surface minutely scabrous, dark-brown, margin thin, incurved, slightly surpassing the lamellae; lamellae broad, crowded, rounded behind, ventricose, adnexed, floccose on the edges, whitish, becoming pink; spores irregular, uninucleate, 7.5–10 × 5–7.5 μ; stipe equal, fibrillose, pruinose at the apex, paler than the pileus, about 2.5 cm. long and 2 mm. thick.

TYPE LOCALITY: Wading River, Suffolk County, New York.
HABITAT: In shaded, gravelly soil.
DISTRIBUTION: New York and Ohio.

23. **Entoloma fibrillosum** Murrill, sp. nov.

Pileus small, thin, regular, umbonate, solitary, 2–3 cm. broad; surface dry, smooth, not striate, uniformly fuliginous when young, becoming umbrinous with age except on the disk,

closely covered with minute, imbricate, fibrillose, fuliginous scales; lamellae deeply sinuate, ventricose, subdistant, pallid to salmon-colored, floccose or finely serrulate on the edges; spores ellipsoid, angular, apiculate, rose-colored, 10–12 × 7 μ; stipe slender, hollow, becoming flattened on drying, pubescent to subglabrous, subconcolorous, attached to a mat of white mycelium, 4 cm. long, 2–3 mm. thick.

Type collected on much decayed wood in woods at Camp Sebec, on the north shore of Sebec Lake, Piscataquis County, Maine, September 16, 17, 1905, *W. A. Murrill 2620* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

24. **Entoloma mirabile** Peck, Mycologia **5**: 68. 1913.

Pileus conic or subcampanulate, with a prominent umbilicate umbo, thin, submembranous, 2–3 cm. broad; surface minutely furfuraceous or subsquamulose, blackish-brown; lamellae arcuate, adnate, subdistant, whitish, becoming pink; spores subglobose, angular, commonly uninucleate, 10–12 μ in diameter; stipe somewhat flexuous, equal, fibrillose, hollow, sometimes compressed and canaliculate, brown, a little paler than the pileus, with white mycelium at the base, 3–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: In swamps under maple trees.
DISTRIBUTION: Known only from the type locality.

25. **Entoloma angustifolium** Murrill, sp. nov.

Pileus fleshy, convex, gregarious, 3 cm. broad; surface glabrous, moist, subrugulose, subfuliginous, margin even, incurved; lamellae sinuate, crowded, narrow, whitish; spores ellipsoid, angular, rose-colored, 10–11 × 6–7 μ; stipe subcylindric, slightly ventricose, glabrous, shining, pallid, solid, 7 cm. long, 7 mm. thick.

Type collected in humus in wet woods at Redding, Connecticut, August 25, 1902, *F. S. Earle 1228* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Connecticut and New Jersey.

26. **Entoloma atribrunneum** Murrill, sp. nov.

Pileus rather fleshy, subcampanulate, distinctly umbonate, solitary, 3 cm. broad; surface dark-brown, floccose-tomentose, margin concolorous, entire; lamellae deeply sinuate, broad, crowded, white to pale-pink, entire on the edges; spores globose, decidedly angular, apiculate, uniguttulate, rose-colored, copious, 8–10 μ; stipe tapering upward from a slightly enlarged base, floccose-scaly, purplish-brown, hollow, 5 cm. long, 3–4 mm. thick.

Type collected on the ground in woods in Van Cortlandt Park, New York City, July 6, 1902, *F. S. Earle 192* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

27. **Entoloma Peckianum** Burt; Peck, Ann. Rep. N. Y. State Mus. **54**: 146. 1901.

Pileus thin, conic, becoming very convex or subcampanulate, umbonate, 1.5–3 cm. broad; surface moist, brown or blackish and shining, paler after the escape of the moisture, obscurely roughened with the matted ends of minute fibrils; lamellae ascending, subcrowded, broad, abruptly rounded behind, adnexed, whitish, becoming pink; spores angular, uninucleate, 10–12.5 × 7.5–10 μ; stipe slender, equal, hollow, fibrillose-striate, pale-brown, often with white mycelium at the base, white within, 5–10 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Floodwood, Franklin County, New York.
HABITAT: In sphagnum marshes.
DISTRIBUTION: Maine and New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 54: *pl. F, f. 9–16.*

28. **Entoloma flavifolium** Peck, Bull. N. Y. State Mus. 105: 21. 1906.

Pileus thin, firm, broadly convex or nearly plane, 3–5 cm. broad; surface glabrous, hygrophanous, watery-white and sometimes striatulate on the margin when moist, white when the

moisture has disappeared; context concolorous, the taste mild or slightly and tardily acrid; lamellae thin, crowded, rounded behind, adnexed, slightly eroded on the edges, pale-yellow, becoming pinkish; spores subglobose, slightly angular, bright-pink, 7.5–10 μ long, apiculate at one end; stipe firm, equal, silky-fibrillose, stuffed or hollow, whitish, with a white mealiness at the apex, 3.5–5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Port Henry, Essex County, New York.
HABITAT: Among fallen leaves in dense woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Bull. N. Y. State Mus. 105: *pl. S, f. 9–15.*

29. **Entoloma albidum** Murrill, sp. nov.

Pileus convex to plane or slightly depressed, not umbonate, gregarious, 5 cm. broad; surface smooth, shining, glabrous, white, becoming tinged with avellaneous with age, margin entire or slightly lobed, concolorous; lamellae sinuate, rather narrow, crowded, salmon-colored, entire on the edges; spores globose, angular, apiculate, rose-colored, 7–8 μ; stipe equal or slightly tapering upward, smooth, white, glabrous, stuffed, about 8 cm. long and 1 cm. thick.

Type collected in rather thin soil at the edge of woods at Stockbridge, Massachusetts, September 3, 4, 1911, *W. A. Murrill & W. Gilman Thompson* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Stockbridge, Massachusetts.

30. **Entoloma pubescens** Murrill, sp. nov.

Pileus irregularly expanded, fleshy, gregarious or subcespitose, 5–8 cm. broad; surface densely silky-pubescent, cinereous, margin not striate; lamellae adnate or broadly adnexed, crowded, rather narrow, flesh-pink; spores subglobose, angular, pink, 7–8 × 6 μ; stipe densely hirsute-pubescent, whitish, solid, enlarged at the base, 4–6 cm. long, 8–12 mm. thick.

Type collected on the ground in Palmetto Swamp south of Auburn, Alabama, December 21, 1899, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Auburn, Alabama.

31. **Entoloma Burlinghamiae** Murrill, sp. nov.

Pileus campanulate to nearly plane, umbonate, gregarious, 4 cm. broad; surface glabrous or minutely pruinose to glabrous, viscid when moist, slightly striate, flavous, brownish-yellow on the umbo, margin entire, concolorous, inflexed; lamellae adnexed, broad, crowded, several times inserted, white, becoming salmon-colored, the edges entire; spores ellipsoid, angular, granular, rose-colored, 7–9 × 5–6 μ; stipe very short and thick, slightly tapering upward, sometimes bulbous, white, with fine, cottony fibrils, solid or spongy, 3 cm. long, 1–2 cm. thick.

Type collected among ferns in a road through hemlock woods at Newfane, Vermont, July 16, 1906, *Gertrude S. Burlingham 41–1906* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

32. **Entoloma Earlei** Murrill, sp. nov.

Pileus convex, irregular, 5 cm. broad; surface glabrous, hygrophanous, ochraceous, paler when dry, margin even, irregular, thin; context firm, pallid, the taste mild; lamellae heterophyllous, adnexed, crowded, uneven, some of them ventricose, pallid; spores ellipsoid, somewhat oblong, angular, rose-colored, 8–9 × 6–7 μ; stipe somewhat flattened, glabrous, pruinose at the apex, pallid, hollow, 4 cm. long, 8–12 mm. thick.

Type collected in rather dry woods at the New York Botanical Garden, August 23, 1903, *F. S. Earle 1915* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

33. **Entoloma bicolor** Murrill, sp. nov.

Pileus rather thick and firm, regular in outline, umbonate, gregarious, reaching 5 cm. broad; surface smooth, dry, glabrous, shining, uniformly melleous-ochroleucous, margin concolorous, entire, striate only a very short distance; context white, with mild, farinaceous taste; lamellae sinuate, rather crowded, triangular, white to pink, wavy on the edges; spores globose or subglobose, angular, apiculate, 7.5–9 μ; stipe white with a satiny luster, smooth, glabrous, equal at maturity, solid, 8 cm. long, 1–1.5 cm. thick.

Type collected on a warm bank in thin maple woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 61* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York and New Jersey.

34. **Entoloma melleidiscum** Murrill, sp. nov.

Pileus convex to nearly plane, not umbonate, solitary, 5 cm. broad; surface smooth, dry, glabrous, melleous on the disk and paler toward the margin, which is striate and entire; lamellae sinuate, rather broad, not crowded, uneven on the edges, pale-rose-colored; spores globose, angular, uniguttulate, rose-colored, copious, 7–9 μ; stipe thick, fleshy, smooth, glabrous, equal, snow-white, stuffed, 6 cm. long, 5–10 mm. thick.

Type collected on the ground in woods near the New York Botanical Garden, 1911, *W. A. Murrill* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

35. **Entoloma Davisii** (Peck) Murrill.

Clitopilus Davisii Peck, Bull. Torrey Club **36**: 153. 1909.

Pileus thin, convex, becoming nearly plane, subumbilicate when dry, gregarious, 3–4 cm. broad; surface glabrous, creamy-white or buff; context white, the odor and taste farinaceous; lamellae narrow, thin, crowded, adnate or slightly decurrent, white, becoming flesh-colored; spores subglobose, angular, uninucleate, 8–10 μ broad; stipe slender, equal or slightly tapering upward, solid or stuffed, subbulbous, white or whitish, shining, becoming brown or brownish with age, often with a white mycelium at the base, 5–7 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: On the ground in woods.
DISTRIBUTION: Massachusetts and the mountains of North Carolina.

36. **Entoloma fragile** Murrill, sp. nov.

Pileus thin, fleshy, expanded, subobtuse or umbonate, 5–8 cm. broad; surface glabrous, hygrophanous, isabelline to pallid, margin even; context subconcolorous, the taste mild, slightly mawkish; lamellae sinuate, subcrowded, ventricose, pallid to dirty-pink; spores ellipsoid, angular, rose-colored, 8–10 $\times$ 7 μ; stipe cylindric, glabrous, concolorous, firm, fibrous, hollow, 5–8 cm. long, 6–12 mm. thick.

Type collected in woods in the New York Botanical Garden, August 10, 1902, *F. S. Earle 965* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of New York City.

37. **Entoloma melleicolor** Murrill, sp. nov.

Pileus rather thick and fleshy, convex to expanded, slightly umbonate, gregarious or cespitose, 6–8 cm. broad; surface smooth, glabrous, melleous, becoming umbrinous, bay, or fuliginous on drying, margin concolorous, sometimes splitting with age; context having a strongly farinaceous taste; lamellae sinuate, broad, ventricose, not crowded, white to pink; spores globose, angular, copious, rose-colored, 7–8 μ; stipe subequal, smooth, white, glabrous, solid, slightly radicate at times, 6–8 cm. long, about 1 cm. thick.

Type collected in turf under crabapple trees at the edge of a golf course at Fort Dodge, Iowa, May 21, 1913, *O. M. Oleson* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

38. **Entoloma brevipes** Murrill, sp. nov.

Pileus convex, not fully expanding, not umbonate, gregarious to subcespitose, reaching 7 cm. broad; surface dry, smooth, polished, avellaneous-isabelline with umbrinous disk, margin entire, concolorous, not striate; context firm, with farinaceous odor and taste; lamellae deeply sinuate, of medium breadth, rather crowded, entire on the edges; spores globose, decidedly angular, apiculate, usually uniguttulate, rose-colored, copious, 7–8 μ; stipe equal or nearly so, smooth, glabrous, milk-white, solid, 4–5 cm. long, 7–10 mm. thick.

Type collected in soil in a clearing in woods near the New York Botanical Garden, September 10, 1910, *W. A. Murrill* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of New York City.

39. **Entoloma inocybiforme** Murrill, sp. nov.

Pileus fleshy, fragile, convex to deeply depressed and irregular with age, distinctly umbonate, loosely clustered, abundant, 4–6 cm. broad; surface hygrophanous, glabrous, striate

to the small, conic umbo, avellaneous-isabelline, margin concolorous, conspicuously striate, upturned and irregular with age; context very thin, dull-whitish, decidedly farinaceous in taste but without odor; lamellae deeply sinuate, almost free, very broad, ventricose, rather distant, pallid to rose-colored; spores subglobose to broadly ellipsoid, decidedly angular, apiculate, uniguttulate, rose-colored, 8–10 × 7 μ; stipe equal or slightly enlarged at the base, smooth, glabrous, concolorous, solid, 4 cm. long, 5 mm. thick.

Type collected in wet loam among weeds under willows by the Bronx River in the New York Botanical Garden, August 7, 1915, *W. A. Murrill* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

40. **Entoloma indigoferum** (Ellis) Sacc. Syll. Fung. **5**: 688. 1887.

Agaricus indigoferus Ellis, Bull. Torrey Club **6**: 75. 1876.

Pileus convex-plane, gregarious or subcespitose, 7.5–10 cm. broad; surface rivulose, indigo-blue, at length fading more or less; context white, very thin toward the margin; lamellae hardly crowded, sinuate-emarginate, white, becoming flesh-colored, at length becoming ventricose and separating from the stipe; spores dull-flesh-colored, very irregular, 10 μ; stipe solid, brittle, fibrillose, white, more or less tinged with blue, 5–7.5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: Among mosses in swamps.
DISTRIBUTION: New Jersey.

41. **Entoloma viridans** Lovejoy, Bot. Gaz. **50**: 385. 1910.

Pileus fleshy, broadly convex, 3.5–5.5 cm. broad; surface hygrophanous when moist, silky-shining when dry, gray, the margin tinged with rose-pink and the disk becoming dull-green, or the coloring may be reversed, the disk rose-pink and the margin a dull-green, margin deflexed, entire, smooth; context white, becoming dull when dry; lamellae all even, light-pinkish-yellow, becoming salmon-pink, 2 mm. broad, slightly sinuate, adnate, then separating, the interspaces venose; spores coarsely warted, pink, 10 × 7 μ; stipe fleshy, white, pruinose, hollow, cylindric, quite bulbous at the base, attenuate upward, 4.5 cm. long, 1.5 cm. thick.

TYPE LOCALITY: Brooklyn Lake, Wyoming.
HABITAT: In damp humus.
DISTRIBUTION: Known only from the type locality.

42. **Entoloma rubribrunneum** Murrill, sp. nov.

Pileus fleshy, brittle when dry, convex, 3–4 cm. broad; surface glabrous, shining, often cracking when dry, reddish-brown, margin even or faintly striate; context white; lamellae adnate or subsinuate, subdistant, broad, whitish, becoming pink; spores subglobose, angular, pink, 8 × 7 μ; stipe short, cylindric or slightly tapering downward, glabrous, white, hollow, 2–4 cm. long, 4–8 mm. thick.

Type collected in oak woods at Opelika, Alabama, September 7, 1899, *F. S. Earle* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Alabama and Mississippi.

43. **Entoloma pluteiforme** Murrill, sp. nov.

Pileus convex, not fully expanding, umbonate, solitary, 5 cm. broad; surface dry, glabrous, striate, umbrinous-avellaneous, margin concolorous, undulate; lamellae adnexed, rather crowded, of medium breadth, entire on the edges, light-pink to salmon-colored; spores ellipsoid, angular, uniguttulate, rosé-colored, 10–12 × 7–8 μ; stipe tapering upward from a somewhat enlarged base, smooth, whitish, glabrous, 5 cm. long, about 5 mm. thick.

Type collected on the ground in woods near the New York Botanical Garden, October 8, 1911, *W. A. Murrill & E. C. Volkert* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

44. **Entoloma commune** Murrill, sp. nov.

Pileus rather thin, convex, often umbonate, becoming depressed and irregular with age, gregarious to subcespitose, 3–5 cm. broad; surface dry, polished, glabrous, avellaneous-um-

brinous, usually darker on the umbo, the cuticle often cracking radially with age, margin concolorous, irregular, usually lobed or split in large specimens; context thin, white, with farinaceous odor and taste; lamellae more or less sinuate, rather narrow, not crowded, soon becoming rose-colored; spores globose, decidedly angular, apiculate, uniguttulate, rose-colored, copious, 6–8 μ; stipe equal, rather short, often twisted, pruinose at the apex, polished and asbestos-like below, white or pale-avellaneous, 4–5 cm. long, 3–6 mm. thick.

Type collected in wet soil in oak woods near the New York Botanical Garden, September 10, 1910, *W. A. Murrill* (herb. N. Y. Bot. Gard.).
HABITAT: On the ground in woods.
DISTRIBUTION: New England to the mountains of Virginia.

45. **Entoloma plumbeum** Earle, Bull. N. Y. Bot. Gard. **3**: 298. 1905.

Pileus irregular, often asymmetrical, expanded or at length depressed, subgregarious, 4–7 cm. broad; surface smooth, not hygrophanous, pale-lead-colored, often with a brownish tint, usually darker at the center, margin irregular, not striate; context white or cream-colored, unchanging, the taste and odor mild; lamellae narrowly sinuate, crowded, strongly heterophyllous, rather narrow, plane or subventricose, cream-colored, becoming tinged with salmon; spores pale-salmon-colored, ellipsoid, smooth, often with a large central vacuole, about 7 × 5 μ; stipe equal, subglabrous or subfibrillose, subconcolorous, sordid, solid, fleshy-fibrous, 2–3 cm. long, 6–7 mm. thick.

TYPE LOCALITY: Palo Alto, California.
HABITAT: In old pastures.
DISTRIBUTION: Known only from the type locality.

46. **Entoloma alcalinum** Murrill, sp. nov.

Pileus firm, convex, umbonate, gregarious or cespitose, 3–5 cm. broad; surface dry, lacerate, grayish-brown, margin concolorous, incurved, irregular, not striate; context white, with alkaline taste; lamellae sinuate, broad, rounded in front, subdistant, undulate on the edges, salmon-colored; spores subglobose angular, rose-colored, 8–10 μ; stipe cylindric, equal, white, striate, pruinose at the apex, solid or stuffed, 4 cm. long, 7 mm. thick.

Type collected on a lawn at Minneapolis, Minnesota, September 3, 1915, *Mary E. Whetstone & N. Darrow 63* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

47. **Entoloma griseum** Peck, Bull. N. Y. State Mus. **75**: 14. 1904.

Pileus fleshy, firm, broadly campanulate or convex, obtuse or slightly umbonate, often irregular, 4–7.5 cm. broad; surface glabrous, hygrophanous, grayish-brown when moist, paler when dry; context whitish, the odor and taste farinaceous; lamellae adnexed, emarginate, decurrent with a tooth, about 4 mm. broad, pale-pink; spores subglobose, angular, 7.5 μ in diameter; stipe equal or slightly tapering upward, silky-fibrillose, pruinose at the apex, stuffed or hollow, grayish-white, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: On the ground in moist woods.
DISTRIBUTION: Northern New York and the mountains of North Carolina.

48. **Entoloma avellaneum** Murrill, sp. nov.

Pileus convex to nearly plane, not umbonate, circular to somewhat irregular, solitary, reaching 3–4 cm. broad; surface smooth, dry, glabrous, not striate, uniformly avellaneous, margin concolorous, undulate or slightly lobed; lamellae not crowded, rather broad, ventricose, sinuate, white to salmon-colored, somewhat uneven on the edges; spores broadly ellipsoid, slightly angular or irregular, apiculate, rose-colored, 7 × 5 μ; stipe tapering upward, white, hollow, smooth, nearly glabrous above, densely clothed with whitish tomentum below and whitish-mycelioid at the base, 5–6 cm. long, 3–6 mm. thick.

Type collected on a much decayed coniferous log in coniferous woods at Lake Placid, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 495* (herb. N. Y. Bot. Gard.).
HABITAT: On much decayed wood or humus.
DISTRIBUTION: Adirondack Mountains, New York.

49. **Entoloma strictius** (Peck) Sacc. Syll. Fung. **5**: 698. 1887.

Agaricus striclior Peck, Ann. Rep. N. Y. State Cab. **23**: 88. 1872.

Pileus submembranous, broadly convex or expanded, umbonate, 3–5 cm. broad; surface glabrous, shining, hygrophanous, grayish-brown and generally striatulate on the margin when moist, paler when dry; lamellae broad, rounded behind, adnexed or nearly free, rather distant, whitish, becoming flesh-colored; spores angular, 10–12.5 × 7.5–10 μ; stipe straight, equal or slightly tapering upward, silky-fibrillose or glabrous, hollow, concolorous or a little paler, often with a dense mycelioid tomentum at the base, 5–10 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Albany, New York.
HABITAT: In damp places in woods or their borders.
DISTRIBUTION: New England to Ohio.
ILLUSTRATIONS: Ann. Rep. N. Y. State Cab. **23**: *pl. 2, f. 6–9;* Ann. Rep. N. Y. State Mus. **53**: *pl. D, f. 8–15;* Atk. Stud. Am. Fungi ed. 1. *f. 138;* ed. 2. *f. 141.*

50. **Entoloma rhodopolium** (Fries) Quél. Champ. Jura Vosg. 227. 1872.

Agaricus rhodopolius Fries, Obs. Myc. **2**: 103. 1818.

Pileus rather thin, usually umbilicate or depressed, regular, gregarious or subcespitose, 3–5 cm. broad; surface smooth, dry, glabrous, hygrophanous, avellaneous to umbrinous, darker on drying, margin entire to lobed or folded, sometimes slightly striate, concolorous; context with farinaceous taste; lamellae adnexed, slightly sinuate, distant, rather narrow, white or whitish, entire on the edges; spores globose or subglobose, angular, rose-colored, 7–9 μ; stipe long, equal or slightly tapering upward, hollow, smooth, glabrous, pruinose at the apex, white or whitish, 7–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In woods.
DISTRIBUTION: New England to Iowa and south to Ohio; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 342* (*338*); Gill. Champ. Fr. *pl. 265* (*275*); Pat. Tab. Fung. 1: *f. 338.*

51. **Entoloma washingtonense** Murrill, sp. nov.

Pileus rather thick and firm, regular, convex to subexpanded, not umbonate, solitary, 3.5 cm. broad; surface glabrous, not shining, striate, uniformly fuliginous-avellaneous, margin entire, concolorous, inflexed; lamellae subtriangular, very broad in front, attenuate-adnexed behind, subdistant, avellaneous, becoming colored by the spores, which are globose, angular, apiculate, uniguttulate, copious, 7–9 μ; stipe subequal, smooth, glabrous, hygrophanous, grayish-avellaneous, fleshy, hollow, 6 cm. long, 7 mm. thick.

Type collected on the ground in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 253* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

52. **Entoloma Cokeri** Murrill, sp. nov.

Pileus expanded, strongly umbonate, 7 cm. broad; surface glabrous, covered with a viscid cuticle which can be removed when dry, radially rugose except on the umbo when wet, smooth when dry, grayish-brown; context 1 cm. thick under the umbo, becoming very thin toward the margin, white, soft, the taste and odor distinctly farinaceous, not leaving an unpleasant taste; lamellae rather crowded, deeply sinuate and narrowly attached, 8 mm. wide at the center, white, becoming flesh-colored, eroded on the edges; spores subglobose, slightly angular, rose-colored, 6–7.5 μ; stipe nearly equal, glabrous, distinctly marked by inherent fibrils, concolorous above, nearly white below, firm, solid, white within, 7.5 cm. long, 1 cm. thick.

Type collected on the ground in mixed woods at Chapel Hill, North Carolina, October 29, 1915, *W. C. Coker 1943* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

53. **Entoloma Grayanum** (Peck) Sacc. Syll. Fung. **5**: 698. 1887.

Agaricus Grayanus Peck, Ann. Rep. N. Y. State Mus. **24**: 64. 1872.

Pileus convex to plane, gregarious, 5–8 cm. or more broad; surface smooth, glabrous, hygrophanous, dark-avellaneous to subumbrinous, margin entire, concolorous; context white,

the odor and taste farinaceous; lamellae adnate or slightly sinuate, subdistant, ventricose, white to rosy, the edges undulate; spores subglobose, angular, rose-colored, 7–9 μ; stipe equal or tapering downward, shining-white, longitudinally striate, glabrous, solid, white within, 6–10 cm. long, 1 cm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On the ground.
DISTRIBUTION: Maine to Alabama in the eastern United States.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 137;* ed. 2. *f. 140;* Bull. N. Y. State Mus. 157: *pl. 126;* Mycologia 5: *pl. 92, f. 4.*
EXSICCATI: Shear, N. Y. Fungi *301.*

54. **Entoloma sericiceps** Murrill.

Agaricus sericeus Bull. Herb. Fr. *pl. 413, f. 2.* 1788. Not *A. sericeus* Schaeff. 1774.
Entoloma sericeum Quél. Champ. Jura Vosg. 86. 1872.

Pileus fleshy but thin, convex, becoming nearly plane, sometimes minutely umbilicate, 3–5 cm. broad; surface glabrous, hygrophanous, brownish when moist, paler, silky, and shining when dry, margin striate, incurved; context having a farinaceous odor and taste; lamellae rather broad, subdistant, adnexed, grayish, becoming salmon-colored; spores subglobose, angular, 7.5–10 × 6–7.5 μ; stipe short, equal, hollow, fibrillose, concolorous or paler, 2.5–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Europe.
HABITAT: In woods and pastures.
DISTRIBUTION: Canada to North Carolina and west to Washington and California; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 413, f. 2;* Cooke, Brit. Fungi *pl. 320b (340);* Gill. Champ. Fr. *pl. 264 (276);* Ricken, Blatterp. Deutschl. *pl. 72, f. 5.*

55. **Entoloma fumosonigrum** Peck, Bull. N. Y. State Mus. 167: 42. 1913.

Pileus fleshy, thin, convex or nearly plane, 3–5 cm. broad; surface dry, subglabrous, smoky-black, margin involute; context white, the taste disagreeable; lamellae moderately crowded, sinuate-adnate, eroded on the edges, at first white, becoming pale-pink; spores subglobose, slightly angular, uninucleate, often with an oblique apiculus at one end, 8–10 μ long; stipe slender, equal or slightly tapering upward, stuffed, glabrous or fibrillose, pruinose at the apex, concolorous or a little paler, with a white, mycelioid tomentum at the base, sometimes entirely white, 4–5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Stow, Massachusetts.
HABITAT: Under trees in swamps.
DISTRIBUTION: Known only from the type locality.

56. **Entoloma nigricans** Peck, Bull. Torrey Club **29**: 72. 1902.

Pileus thin, convex, becoming irregularly expanded and centrally depressed, 3–4 cm. broad; surface innately silky-fibrillose, shining, dark-gray or blackish, the cuticle often radiately cracking, margin somewhat striate or sulcate in dried specimens; lamellae broad, subdistant, sinuate, adnate, salmon-colored; spores salmon-colored, angular, uninucleate, 8–12 μ long, nearly as broad; stipe equal, silky-fibrillose, at first solid, becoming hollow, shining, white streaked with black, sometimes scurfy at the apex, 2.5–5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: In low ground in woods.
DISTRIBUTION: Known only from the type locality.

57. **Entoloma subjubatum** Murrill, sp. nov.

Pileus convex to expanded, usually somewhat umbonate, becoming quite irregular with age, gregarious, 5–7 cm. broad; surface dry, imbricate-squamulose, especially at the center, fuliginous when young, usually fading to avellaneous with age, the disk remaining darker, margin pallid, usually lobed or cracked in older specimens; context thin, white, without odor, but with a pleasant, nutty-farinaceous taste; lamellae deeply sinuate, broad, ventricose, not crowded, salmon-colored, dark-isabelline in dried specimens; spores ellipsoid, angular, 8–9 ×

6–7 μ; stipe cylindric, equal, slightly twisted at times, whitish or avellaneous, pruinose or fibrillose, solid, 6–8 cm. long, 1 cm. thick.

Type collected on the ground in woods in the New York Botanical Garden, September 10, 1912, *Mary E. Eaton* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York and Massachusetts.

58. **Entoloma subcostatum** Atk. Jour. Myc. **12**: 236. 1906.

Pileus convex to expanded, plane or subgibbous, not umbonate, irregular, repand, gregarious or cespitose, 4–8 cm. broad; surface subviscid when moist, often subvirgate with darker lines, dark-gray to hair-brown or olive-brown, margin incurved; context white, rather thin, very thin toward the margin; the odor somewhat of old meal or nutty, not pleasant, the taste similar; lamellae light-salmon-colored, becoming dull, broad, narrowed toward the margin of the pileus, deeply sinuate, usually rounded, adnexed, easily becoming free, the edges usually plane, sometimes interveined, sometimes costate; spores subglobose, pale-rose-colored, angular, 8–10 μ in diameter; stipe concolorous but paler, 6–8 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: On grassy ground.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Hard, Mushr. *f. 198;* Jour. Myc. **12**: *pl. 92.*

59. **Entoloma ferruginans** Peck, Bull. Torrey Club **22**: 200. 1895.

Pileus fleshy, convex, obtuse or umbonate, often irregular, 5–10 cm. broad; surface hygrophanous, glabrous, shining, finely striate at times, gray or lead-colored to almost black; context whitish, fibrous and colored at the surface, the odor and taste farinaceous in young plants, at length nauseating; lamellae 8–14 mm. broad, adnexed, easily splitting transversely, subcrowded, grayish-salmon, becoming clay-colored; spores subglobose, irregular or angular, 7.5–10 μ long; stipe solid, glabrous, white to subconcolorous, blunt at the base or sometimes attenuate and radicate, 7.5–10 cm. long, 1–3 cm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: Under oak trees.
DISTRIBUTION: California.

60. **Entoloma subsinuatum** Murrill, sp. nov.

Pileus thick, fleshy, convex to subexpanded, umbonate, cespitose, reaching 13 cm. broad; surface slightly viscid when moist, smooth, white with a yellowish tint, margin entire, white, not striate; context thick, white; lamellae emarginate, rounded behind, broad, rather crowded, white to salmon-colored; spores globose, decidedly angular, apiculate, rose-colored, copious, 7–8 μ; stipe smooth, glabrous or slightly fibrillose, shining, concolorous, solid or stuffed, equal, except at the bulbous base, white within, 15 cm. long, 3 cm. thick.

Type collected in leaf-mold in rich woods at Bar Harbor, Maine, August 17, 1901, *V. S. White 118* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Bar Harbor, Maine.

61. **Entoloma grande** Peck, Ann. Rep. N. Y. State Mus. **50**: 101. 1897.

Pileus fleshy, thin toward the margin, convex, becoming nearly plane, generally umbonate, subcespitose, 10–15 cm. broad; surface usually centrally rugosely wrinkled, moist in wet weather, glabrous, yellowish-white, becoming brownish or grayish-brown; context white, the odor and flavor farinaceous; lamellae broad, subdistant, slightly adnexed, becoming free or nearly so, often wavy or eroded on the edges, whitish, becoming pinkish; spores subglobose, angular, 7.5–10 μ in diameter; stipe equal, solid, slightly fibrous externally, mealy at the apex, white, 10–15 cm. long, 1.5–2.5 cm. thick.

TYPE LOCALITY: Menands, New York.
HABITAT: In woods.
DISTRIBUTION: New York.
ILLUSTRATION: Bull. N. Y. State Mus. 139: *pl. 119.*

62. **Entoloma Whiteae** Murrill, sp. nov.

Pileus large, fleshy, convex, cespitose, reaching 12 cm. broad; surface glabrous, smooth, viscid when moist, yellowish-brown, slightly darker at the center and becoming much darker when dried, margin entire, incurved, concolorous; context white, thick, the taste mild and pleasant; lamellae emarginate to sinuate-adnate, broad, crowded, white to yellowish; spores globose, irregular, angular, apiculate, rose-colored, 8–10 μ; stipe equal, stout, solid, fleshy, white, subglabrous, reaching 10–12 cm. long and 2–3 cm. thick.

Type collected in rich woods at Bar Harbor, Maine, August 15, 1901, *V. S. White 110* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

63. **Entoloma giganteum** Murrill, sp. nov.

Pileus convex to subexpanded, very large, fleshy, 2 hymenophores growing together, each 20 cm. broad; surface smooth, moist, somewhat viscid, yellowish-white, slightly squamulose and pale-fawn-colored on the disk, margin pallid, undulate, not striate; context thick, white, the taste at first pleasant, then disagreeable and long-persistent; lamellae sinuate, several times inserted, very broad, ventricose, white to salmon-colored, and at length almost yellow; spores subglobose, slightly angular, apiculate, rose-colored, 10 μ; stipe very thick and fleshy, solid, whitish-isabelline, somewhat pruinose at the apex and roughly squamose at the base, deeply rooted and tapering downward, 15 cm. long, 6 cm. thick.

Type collected in leaf-mold in woods at Bar Harbor, Maine, September 15, 1901, *V. S. White 156* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Entoloma Batschianum (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 261. 1879. (*Agaricus Batschianus* Fries, Epicr. Myc. 144. 1838.) Reported from Connecticut by Sprague and more recently from New Jersey by Peck. This species may have been confused with *E. indigoferum.*

Entoloma cinchonense Murrill, Mycologia **3**: 279. 1911. This species belongs in *Melanoleuca* rather than in *Entoloma.*

Entoloma clypeatum (L.) Quél. Champ. Jura Vosg. 85. 1872. (*Agaricus clypeatus* L. Fl. Suec. ed. 2. 446. 1775.) Reported by Peck and others from New York, Massachusetts, Ohio, North Carolina, and other states but the specimens seen do not correspond with authentic European material from Romell and Bresadola.

Entoloma demetriacum (Berk. & Mont.) Sacc. Syll. Fung. **5**: 682. 1887. (*Agaricus demetriacus* Berk. & Mont.; Mont. Syll. Crypt. 115. 1856.) Described from specimens collected on the ground among corn fodder at Columbus, Ohio.

Entoloma flavoviride Peck, Ann. Rep. N. Y. State Mus. **41**: 64. 1888. Described from specimens collected in low, swampy woods at Karner, New York. The type at Albany is poor, but it appears to be a depauperate form of *Entoloma luteum;* in which case the name would have precedence over *E. luteum.*

Entoloma flavum (Johnson) Sacc. Syll. Fung. **9**: 84. 1891. (*Agaricus flavus* Johnson, Bull. Minn. Acad. Sci. **1**: 329. 1878. Not *A. flavus* Lasch, 1829.) Described from specimens collected on the ground in woods in Minnesota.

Entoloma helodes (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 260. 1879. (*Agaricus elodes* Fries, Syst. Myc. **1**: 196. 1821.) Reported from Connecticut, North Carolina, and Minnesota. Specimens from Romell are near *E. humidicola* but with conspicuous conic umbo.

Entoloma jubatum (Fries) P. Karst. Bidr. Finl. Nat. Folk **32**: 263. 1879. (*Agaricus jubatus* Fries, Syst. Myc. **1**: 196. 1821.) See *E. subjubatum.*

Entoloma nidorosum (Fries) Quél. Champ. Jura Vosg. 86. 1872. (*Agaricus nidorosus* Fries, Epicr. Myc. 148. 1838.) Reported by Peck and others from various parts of the United States, but specimens so named are quite different from authentic European material, being near *E. strictius,* with much more crowded lamellae.

Entoloma prunuloides (Fries) Quél. Champ. Jura Vosg. 83. 1872. (*Agaricus prunuloides*

Fries, Syst. Myc. **1**: 198. 1821.) Reported from North Carolina and Minnesota. No specimens have been seen that agree with authentic material.

Entoloma Robinsonii (Berk. & Mont.) Sacc. Syll. Fung. **5**: 683. 1887. (*Agaricus Robinsonii* Berk. & Mont.; Mont. Syll. Crypt. 114. 1856.) Described from specimens collected on decayed wood at Columbus, Ohio. The types at Paris are not far from *E. Grayanum*. Another specimen bearing the same number resembles *Gymnopus platyphyllus*, having an extremely long stipe.

Entoloma sericellum (Fries) Quél. Champ. Jura Vosg. 85. 1872. (*Agaricus sericeus sericellus* Fries, Obs. Myc. **2**: 145. 1818. *A. sericellus* Fries, Syst. Myc. **1**: 196. 1821.) Reported from New York and Massachusetts but none of the specimens agree with authentic European material from Bresadola and Romell.

Entoloma sinuatum (Bull.) Quél. Champ. Jura Vosg. 332. 1873. (*Agaricus sinuatus* Bull. Herb. Fr. *pl. 579, f. 1.* hyponym; 1793; Pers. Syn. Fung. 329. 1801.) Reported from New York, Massachusetts, and elsewhere by Peck and others. The European plant is 16 cm. or more broad, yellowish-white, glabrous, with a long, thick stipe and poisonous context.

59. PLUTEUS Fries, Gen. Hymen. 6. 1836.

Pileus fleshy, putrescent, easily separating from the stipe, solitary or gregarious; lamellae free; spores pink or salmon-colored; stipe central, fleshy; veil none.

Type species, *Agaricus cervinus* Schaeff.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Pileus small, 1–2.5 cm. broad, rarely larger in *P. roseocandidus*.
- Pileus pure-white. — 1. *P. niveus*.
- Pileus white with a rosy tint.
  - Stipe 1–2 mm. thick. — 2. *P. sterilomarginatus*.
  - Stipe 3–4 mm. thick. — 3. *P. roseocandidus*.
- Pileus grayish-white, darker on the umbo. — 4. *P. unakensis*.
- Pileus deep-orange-yellow. — 5. *P. aurantiacus*.
- Pileus greenish-yellow, smoky-green on the disk. — 6. *P. rugosidiscus*.
- Pileus pale-melleous, slightly darker on the umbo. — 7. *P. melleus*.
- Pileus pale-isabelline, with blackish, hairy disk. — 8. *P. lepiotiformis*.
- Pileus cinnamon when moist, ochraceous when dry; stipe honey-yellow. — 9. *P. melleipes*.
- Pileus pale-bay, chestnut on drying. — 10. *P. nanellus*.
- Pileus yellowish-brown, dark-brown on drying, not reticulate. — 11. *P. glabrescens*.
- Pileus yellow or brown, rugose-reticulate. — 12. *P. admirabilis*.
- Pileus fawn-colored, with darker, scaly disk. — 13. *P. squamosidiscus*.
- Pileus avellaneous-umbrinous, umbrinous on the umbo. — 14. *P. umbrinidiscus*.
- Pileus dark-brown or fuliginous.
  - Stipe pallid. — 15. *P. atriavellaneus*.
  - Stipe dull-red. — 16. *P. eximius*.

Pileus of medium size, 3–5 cm. broad.
- Pileus cinereous or whitish, long-striate, darker and squamulose on the disk. — 17. *P. longistriatus*.
- Pileus pale-isabelline, fulvous on the disk, not striate. — 18. *P. pallidicervinus*.
- Pileus pinkish-fawn-colored.
  - Disk concolorous. — 19. *P. campanulatus*.
  - Disk dark-brown. — 20. *P. brunneidiscus*.
- Pileus yellow or reddish-yellow. — 21. *P. leoninus*.
- Pileus golden-brown, darker on the disk. — 22. *P. Whiteae*.
- Pileus chrome-yellow with a smoky tint, the disk reticulate. — 23. *P. flavofuligineus*.
- Pileus orange or orange-red. — 24. *P. caloceps*.
- Pileus reddish-umbrinous, whitish on the disk. — 25. *P. umbonatus*.
- Pileus varying from yellow to brown, distinctly granulose. — 26. *P. granularis*.
- Pileus pale-ochraceous-brown; stipe 11 cm. long, 4 mm. thick. — 27. *P. longipes*.
- Pileus dark-tan; stipe 7 cm. long, 5–8 mm. thick. — 28. *P. ludovicianus*.
- Pileus grayish-brown, darker on the conspicuous umbo. — 29. *P. griseibrunneus*.
- Pileus avellaneous, paler on the disk, not umbonate. — 30. *P. avellaneus*.
- Pileus brownish.
  - Pileus deliquescent; stipe not twisted. — 31. *P. deliquescens*.
  - Pileus not deliquescent; stipe twisted. — 32. *P. tortus*.
- Pileus fuliginous or dark-brown.
  - Pileus umbonate. — 33. *P. fuliginosus*.
  - Pileus not umbonate. — 34. *P. fibrillosus*.

Pileus large, 5–10 cm. broad.
- Pileus finely tomentose, white, 5–7.5 cm. broad. — 35. *P. tomentosulus*.
- Pileus slightly fibrillose to glabrous.
  - Pileus grayish or brownish. — 36. *P. cervinus*.
  - Pileus white, larger, with stipe 2 cm. thick. — 37. *P. grandis*.

II. SPECIES OCCURRING ON THE PACIFIC COAST

Pileus 2–5 cm. broad.
  Stipe 2–7 cm. long, 2–5 mm. thick.
    Surface greenish-gray, becoming cinnamon-gray. 38. *P. californicus.*
    Surface avellaneous-isabelline, tomentose. 39. *P. latifolius.*
    Surface avellaneous-umbrinous, glabrous. 40. *P. washingtonensis.*
  Stipe 9 cm. long, 10 mm. thick. 41. *P. fulvibadius.*
Pileus 6–10 cm. broad. 36. *P. cervinus.*
Pileus 10–20 cm. broad. 42. *P. magnus.*

III. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Pileus about 1 cm. or less broad.
  Surface white, covered with soft, black hairs. 43. *P. tephrostictus.*
  Surface reddish-white, glabrous. 44. *P. alborubellus.*
  Surface orange-red. 45. *P. laetifrons.*
  Surface date-brown. 46. *P. aethalus.*
Pileus 2–3 cm. broad, reaching 4 cm. in *P. compressipes.*
  Surface whitish, yellowish on the disk. 47. *P. myceniformis.*
  Surface rosy-isabelline, slightly darker on the disk. 48. *P. compressipes.*
  Surface dark-brown or fuliginous, rarely varying to olivaceous.
    Stipe brownish, 2 cm. long, 2 mm. thick. 49. *P. pulverulentus.*
    Stipe white.
      Surface of pileus glabrous.
        Surface striate. 50. *P. multistriatus.*
        Surface rugose, not striate. 51. *P. jamaicensis.*
      Surface of pileus floccose or finely asperate.
        Stipe 1–3 cm. long; pileus fuscous-brown or olivaceous. 52. *P. nitens.*
        Stipe 3–4 cm. long; pileus pale-fuliginous to dark-chestnut. 53. *P. Harrisii.*
Pileus 4–5 cm. broad.
  Stipe 3–5 mm. thick.
    Surface of pileus glabrous, smooth. 54. *P. spinulosus.*
    Surface of pileus velvety, reticulate. 55. *P. reticulatus.*
  Stipe 10 mm. or more thick. 56. *P. rimosus.*
Pileus 6–10 cm. broad.
  Surface densely floccose, uniformly pale-yellow. 57. *P. Earlei.*
  Surface subglabrous, not colored as above. 36. *P. cervinus.*

1. **Pluteus niveus** Murrill, sp. nov.

Pileus thin, expanded, 2 cm. broad; surface minutely furfuraceous, white, margin not striate; lamellae free, subcrowded, broad, ventricose, white to pale-pink; spores broadly ellipsoid, 8 × 6 μ; stipe cylindric, glabrous, shining, white, solid, 5 cm. long, 2 mm. thick.

Type collected at West Park, New York, August 3, 1903, *F. S. Earle 1698* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

2. **Pluteus sterilomarginatus** Peck, Ann. Rep. N. Y. State Mus. 38: 136. 1885.

Agaricus sterilomarginatus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 48. 1873.

Pileus thin, broadly convex or expanded, 1.2–2.5 cm. broad; surface covered with a minute, close-pressed tomentum, pinkish-white, margin thin, projecting beyond the lamellae; lamellae crowded, subventricose, minutely eroded on the edges, tapering toward the outer extremity, pale-flesh-colored; spores subglobose, angular, usually containing a single central nucleus, 6 μ; stipe short, equal, solid, glabrous, straight or curved, whitish, about 2.5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Portville, New York.
HABITAT: On decaying wood and sticks in woods.
DISTRIBUTION: Massachusetts, New York, and Virginia.

3. **Pluteus roseocandidus** Atk. Ann. Myc. 7: 373. 1909.

Pileus convex to expanded, upturned with age, gregarious, 2–3 cm. broad; surface pure-white, showing a tint of rose in wet weather, smooth, margin striate, thin; lamellae pure-white, becoming rose-colored, elliptic, not very crowded, very slightly adnexed, rounded behind; spores globose or subglobose, pale-flesh-colored, coarsely granular, smooth, 7–8 μ; stipe even, smooth, fibrous-striate, slightly mealy at the apex, hollow, fragile, hairy at the base, sometimes compressed, 3–4 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Cascadilla woods, Ithaca, New York.
HABITAT: On grassy ground.
DISTRIBUTION: Known only from the type locality.

4. **Pluteus unakensis** Murrill, sp. nov.

Pileus thin, convex to expanded, umbonate, 2 cm. broad; surface densely silky-fibrillose, grayish-white, darker on the umbo, margin striate; lamellae free, crowded, narrow, white to pink; spores minute, subglobose, rose-colored, 4 × 3 μ; stipe cylindric, minutely fibrillose, white, 4–5 cm. long, 2–3 mm. thick.

Type collected in mixed woods at Unaka Springs, Tennessee, August 18-24, 1904, *W. A. Murrill 853* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

5. **Pluteus aurantiacus** Murrill, sp. nov.

Pileus convex, umbonate, not expanding, regular, gregarious, 2 cm. broad; surface glabrous, rugose, deep-orange-yellow, margin entire, striate; lamellae free, rather broad, subcrowded, pallid to salmon-colored, entire and concolorous on the edges; spores subglobose, rose-colored, 6–7 μ; stipe slender, equal, hollow, glabrous, shining, pale-yellow, fragile, 4–5 cm. long, scarcely 2 mm. thick.

Type collected on decayed wood among mosses in swampy ground at West Park, New York, August 1, 1903, *F. S. Earle 1664* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

6. **Pluteus rugosidiscus** Murrill, sp. nov.

Pileus small, thin, regular, convex to subexpanded, slightly umbonate, solitary, 1–1.5 cm. broad; surface glabrous, moist, greenish-yellow, smoky-green on the disk, with pruinose, reticulate, raised, radiating lines, margin entire, concolorous, not striate; lamellae free, broad, ventricose, crowded, inserted, white to salmon-colored, entire and concolorous on the edges; spores ellipsoid, smooth, rose-colored, apiculate, 7 × 3.5 μ; stipe slender, cylindric, equal, smooth, glabrous, greenish-yellow, whitish-tomentose at the base, 2.5 cm. long, 1 mm. thick.

Type collected on dead wood in deciduous woods at Falls Church, Virginia, July 2-6, 1904, *W. A. Murrill 111* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

7. **Pluteus melleus** Murrill, sp. nov.

Pileus rather small, convex to subexpanded, umbonate, regular, solitary, 1–2 cm. broad; surface glabrous, rugose, pale-melleous, slightly darker on the umbo, margin entire to undulate, concolorous; lamellae free, broad, ventricose, crowded, several times inserted, white to salmon-colored, entire and concolorous on the edges; spores broadly ellipsoid, smooth, rose-colored, 7 × 5–6 μ; stipe very slender, cylindric, equal, smooth, glabrous, pale-melleous, 2 cm. long, 1 mm. thick.

Type collected on much decayed wood in mixed woods at Unaka Springs, Tennessee, August 18-24, 1904, *W. A. Murrill 840* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Adirondack Mountains, New York, and the mountains of Tennessee.

8. **Pluteus lepiotiformis** Murrill, sp. nov.

Pileus small, convex, not fully expanding, not umbonate, solitary, 1–2 cm. broad, much resembling in a dried condition certain small species of *Lepiota;* surface not striate, pale-isabelline, with black, strigose, appressed hairs, which are more abundant on the disk, margin pallid, often lacerate with age; lamellae free, subcrowded, rather broad, white to pale-salmon-colored, fragile, entire and concolorous on the edges; spores globose, smooth, rose-colored, 7 μ; stipe very slender, equal, smooth, glabrous, white, about 3 cm. long and 1 mm. thick.

Type collected on the ground in wet woods in City Park, New Orleans, Louisiana, September 6, 1908, *F. S. Earle 74* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of New Orleans, Louisiana.

9. **Pluteus melleipes** Murrill, sp. nov.

Pileus thin, broadly convex to expanded, obtuse, 1–2.5 cm. broad; surface hygrophanous, glabrous, rugose, cinnamon when moist, ochraceous when dry, margin not striate; lamellae

free, crowded, ventricose, whitish to brownish-pink; spores subglobose, rose-colored, about 6 μ; stipe cylindric, glabrous, honey-yellow, 2–4 cm. long, 2 mm. thick.

Type collected on rotten wood at West Park, New York, July 30, 1903, *F. S. Earle 1589* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: New York and Connecticut.

10. **Pluteus nanellus** Murrill, sp. nov.

Pileus small, convex, not fully expanding, slightly umbonate, solitary, 13 mm. broad; surface dry, apparently glabrous, but minutely tomentose under a lens, smooth, not striate, pale-bay, castaneous on drying, margin concolorous, rivulose; lamellae free, crowded, ventricose, white to salmon-colored, the edges white and serrulate; spores globose, smooth, rose-colored, 5–6 μ; stipe slender, equal, smooth, glabrous, flattened on drying, snow-white, 2 cm. long, 1–1.5 mm. thick.

Type collected on a dead log in woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 73* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Northern New York.

11. **Pluteus glabrescens** Murrill, sp. nov.

Pileus convex, 2 cm. broad; surface subviscid, glabrous, shining, yellowish-brown, becoming dark-brown on drying; lamellae free, crowded, subventricose, pale-pink; spores subglobose, 6–7 μ; stipe cylindric, glabrous, white with a flesh-colored tint, hollow, 7 cm. long, 4 mm. thick.

Type collected on rotten wood at West Park, New York, August, 1903, *F. S. Earle 1740* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

12. **Pluteus admirabilis** Peck, Ann. Rep. N. Y. State Mus. **38**: 317. 1885.

Agaricus admirabilis Peck, Ann. Rep. N. Y. State Mus. **24**: 64. 1872.

Pileus thin, convex or expanded, generally broadly umbonate, 1.2–2 cm. broad; surface glabrous, rugose-reticulate, yellow or brown, moist or hygrophanous, margin striatulate when moist, often obscurely striate when dry, lamellae crowded, broad, rounded behind, ventricose, whitish or yellowish, becoming flesh-colored; spores subglobose or broadly ellipsoid, 6–7.5 $\times$ 6 μ; stipe slender, glabrous, hollow, equal or slightly thickened at the base, yellow or yellowish-white, with white mycelium at the base, 2.5–5 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Greig, New York.

HABITAT: On decaying wood and prostrate trunks in forests.

DISTRIBUTION: New York to Wisconsin and south to Virginia and Tennessee.

13. **Pluteus squamosidiscus** Murrill, sp. nov.

Pileus thin but firm, convex, 2.5 cm. broad; surface moist, fawn-colored, darker and covered with conic, darker brown scales on the disk, margin striate; lamellae free, crowded, moderately broad, pallid to dark-pink; spores broadly ellipsoid, smooth, rose-colored, 7–8.5 $\times$ 5–6.5 μ; stipe cylindric, glabrous, shining, pallid-white, solid, 3.5 cm. long, 2 mm. thick.

Type collected in a swamp at New Orleans, Louisiana, September 5, 1908, *F. S. Earle 55* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

14. **Pluteus umbrinidiscus** Murrill, sp. nov.

Pileus convex, with a small umbo, not fully expanding, 2.5 cm. broad; surface hygrophanous, glabrous, although appearing subtomentose, avellaneous-umbrinous, umbrinous on the umbo, margin entire, paler, distinctly striate for a distance of 7–8 mm.; lamellae free, broad, ventricose, subcrowded, white to salmon-colored, entire and slightly whitish-pubescent on the edges; spores broadly ellipsoid, smooth, rose-colored, 7–8 $\times$ 6 μ; stipe cylindric, equal, smooth, glabrous, snow-white, 5 cm. long, 3 mm. thick.

Type collected on a dead log at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

15. **Pluteus atriavellaneus** Murrill, sp. nov.

Pileus small, convex to expanded, not umbonate, regular, solitary, 1–2 cm. broad; surface hygrophanous, finely pubescent to glabrous, not rugose, uniformly fuliginous when young, becoming avellaneous with age, margin entire, concolorous, striate; lamellae free, broad, ventricose, subcrowded, white to salmon-colored, entire and whitish on the edges; spores subglobose, smooth, rose-colored, 7–8 μ; stipe slender, equal, smooth, glabrous, pallid, 3 cm. long, 1–2 mm. thick.

Type collected in humus in mixed woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 673* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

16. **Pluteus eximius** (Peck) Murrill.

Agaricus eximius Peck, Ann. Rep. N. Y. State Mus. **24**: 70. 1872.
Pilosace eximia Sacc. Syll. Fung. **5**: 1012. 1887.

Pileus fleshy, thin, convex or broadly campanulate, at length expanded and subumbonate, 6–12 mm. broad; surface smooth, dark-sooty-brown; lamellae crowded, broad, ventricose, rounded behind, free, dull-red or brownish-pink, becoming brown; spores ellipsoid, reddish, 6 × 4 μ; stipe slender, hollow, dull-red, slightly thickened at the base, 2.5 cm. long; 1 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: On old stumps in woods.
DISTRIBUTION: New York.

17. **Pluteus longistriatus** (Peck) Sacc. Syll. Fung. **5**: 670. 1887.

Agaricus longistriatus Peck, Ann. Rep. N. Y. State Mus. **30**: 40. 1878.

Pileus thin, convex or expanded, not umbonate, 2.5–4 cm. broad; surface dry, cinereous or whitish, striate to the disk, which is usually darker than the margin and minutely squamulose or hairy; lamellae broad, ventricose, white, becoming salmon-colored; spores globose, smooth, 5–7 μ; stipe equal, glabrous, white, about 5 cm. long and 2 mm. thick, sometimes reaching 4 mm.

TYPE LOCALITY: Albany, New York.
HABITAT: On decaying wood.
DISTRIBUTION: New York to Alabama and west to Ohio.

18. **Pluteus pallidicervinus** Murrill, sp. nov.

Pileus convex to expanded, not umbonate, regular, gregarious, 5 cm. broad; surface smooth, finely tomentose, at least under a lens, pale-isabelline, dark-isabelline or fulvous on the disk, margin entire, concolorous, not striate; lamellae free, broad, ventricose, crowded, white to salmon-colored; spores subglobose, smooth, rose-colored, 7 μ; stipe cylindric, equal, smooth, glabrous, concolorous, solid, 7 cm. long, 5 mm. thick.

Type collected on rotten wood at West Park, New York, August 3, 1903, *F. S. Earle 1643* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

19. **Pluteus campanulatus** Murrill, sp. nov.

Pileus very thin, delicate, subtranslucent, campanulate, obtuse, 3 cm. broad; surface glabrous, pale-pinkish-fawn-colored, margin striate to the disk; lamellae free, crowded, narrow, watery-white to pink; spores globose, reddish-pink, 5 μ; stipe slightly tapering upward, glabrous, pallid or whitish, hollow, the base discoid and attached by a mat of mycelium, 3–5 cm. long, 2–3 mm. thick.

Type collected on rotten wood in wet woods at Redding, Connecticut, July, 1902, *L. M. Underwood & F. S. Earle 655* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

20. **Pluteus brunneidiscus** Murrill, sp. nov.

Pileus rather thin, convex to expanded, not umbonate, solitary, 3.5 cm. broad; surface smooth, glabrous, pinkish-fawn-colored, dark-brown on the disk, margin entire, pallid, faintly

striate, slightly lacerate with age; lamellae free, ventricose, broad, crowded, white to salmon-colored, entire and concolorous on the edges; spores oblong-ellipsoid, smooth, rose-colored, 7–8.5 × 4–6 μ; cystidia bifid or trifid; stipe cylindric, subequal, smooth, glabrous, white, hollow, 3.5 cm. long, 3 mm. thick.

Type collected on a mossy log at Redding, Connecticut, July 20, 1902, *F. S. Earle 524* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

21. **Pluteus leoninus** (Schaeff.) Quél. Champ. Jura Vosg. 82. 1872.

Agaricus leoninus Schaeff. Fung. Bavar. 4: Ind. 21. 1774.

Pileus thin, campanulate, becoming convex or expanded, 3–5 cm. broad; surface even, glabrous, moist or subhygrophanous, yellow or reddish-yellow, margin striate; lamellae rather broad, rounded behind, yellowish throughout or only on the edges, becoming flesh-colored; spores broadly ellipsoid, 7–8 × 6 μ; stipe equal, solid, slightly striate, white or yellowish, about 5 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On decaying wood in forests.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 421 (313)*; Gill. Champ. Fr. *pl. 261 (551)*; Pat. Tab. Fung. 2:*f. 639*; Pers. Ic. Descr. Fung. *pl. 7, f. 4*; Ricken, Blätterp. Deutschl. *pl. 71, f. 5*; Schaeff. Fung. Bavar. *pl. 48*.

22. **Pluteus Whiteae** Murrill, sp. nov.

Pileus convex, not expanding, not umbonate, regular, solitary, 5 cm. broad; surface dry, minutely granular, golden-brown or ochraceous-fulvous, umbrinous-avellaneous on the disk, margin entire, concolorous, faintly striate; context with a mild taste; lamellae free, rather broad and crowded, white to salmon-colored; spores subglobose, smooth, rose-colored, 6–8 μ; stipe equal, smooth, glabrous, shining, white, somewhat compressed and twisted, hollow or stuffed, 7 cm. long, 8 mm. thick.

Type collected on decayed wood at Bar Harbor, Maine, August 11, 1901, *V. S. White 91* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

23. **Pluteus flavofuligineus** Atk. Jour. Myc. 8: 117. 1902.

Pileus oval to convex, sometimes slightly umbonate, very thin, solitary, 4–5 cm. broad; surface minutely tomentose when young, chrome-yellow with a smoky tint and with smoky radiating lines which anastomose more or less near the center, margin not striate; context thin; lamellae free, rounded at both ends, 3–5 mm. broad, not very crowded, deep-flesh-colored; spores ovoid, smooth, deep-flesh-colored, 5–7 × 4–6 μ; cystidia numerous, fusoid, blunt at the ends, hyaline, 80–100 × 12–20 μ; stipe pale-pink to flesh-colored, smooth, solid, becoming fistulose, 5–7 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Coy Glen, Ithaca, New York.
HABITAT: On very much decayed wood in woods.
DISTRIBUTION: New York to Tennessee.

24. **Pluteus caloceps** Atk. Ann. Myc. 7: 373. 1909.

Pileus convex, umbonate, 2.5–4.5 cm. broad; surface smooth or appearing slightly granular in some places by the separation of the cells, or somewhat rimose toward the margin, orpiment-orange to vermilion, orange-vermilion at the center; context white; lamellae broadly elliptic to subventricose, rounded behind, free, minutely floccose on the edges, dull-flesh-colored; spores suboblong, 5–8 × 4–6 μ; stipe fibrous-striate, pallid, 2.5–6 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Dead Lake, Michigan.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

25. **Pluteus umbonatus** C. G. Lloyd, Myc. Notes 15. 1899.

Pileus campanulate, with a prominent, blunt umbo, 4 cm. broad; surface glabrous, strongly striate to the disk, reddish-umbrinous, except on the umbo, which is almost white, glabrous,

and smooth; context very thin, except at the center; lamellae broad, free, flesh-colored; spores globose, 5 μ; stipe white, solid, smooth, tapering upward, 7 cm. long, 3–6 mm. thick.

TYPE LOCALITY: Cincinnati, Ohio.
HABITAT: In leaf-mold.
DISTRIBUTION: Known only from the type locality.

26. **Pluteus granularis** Peck, Ann. Rep. N. Y. State Mus. **38**: 135. 1885.

Agaricus granularis Peck, Bull. Buffalo Soc. Nat. Sci. 1: 49. 1873.
Pluteus regularis Sacc. Syll. Fung. 5: 673. 1887.

Pileus convex or nearly plane, subumbonate, 3–5 cm. broad; surface rugose-wrinkled, granulose or granulose-villose, varying in color from yellow to brown; lamellae rather broad, crowded, ventricose, whitish, becoming flesh-colored; spores subglobose or broadly ellipsoid, 6–7.5 × 5–6 μ; stipe equal, solid, concolorous, often paler at the apex, velvety-pubescent, rarely squamulose, 3.5–7.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Pine Hill, New York.
HABITAT: On decaying wood and prostrate trunks in woods.
DISTRIBUTION: New York, Ohio, and Wisconsin.
ILLUSTRATIONS: Conn. State Geol. & Nat. Hist. Surv. 15: *pl. 24;* Hard, Mushr. *f. 190.*

27. **Pluteus longipes** Murrill, sp. nov.

Pileus thin, expanded, obtuse, 4 cm. broad; surface dry, glabrous, pale-ochraceous-brown, margin striate; lamellae free, subcrowded, subventricose, pallid to brownish-pink; spores subglobose, rose-colored, 6–7 μ; stipe very long and slender, cylindric, glabrous, shining, white, hollow, 11 cm. long, 4 mm. thick.

Type collected on rotten trash in soil at Redding, Connecticut, July 22, 1902, *F. S. Earle 628* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

28. **Pluteus ludovicianus** Murrill, sp. nov.

Pileus rather firm, convex to expanded, somewhat plicate, solitary, 5 cm. broad; surface glabrous, hygrophanous, dark-tan, pale-fuliginous in dried specimens, margin paler, striate; lamellae free, broad, crowded, white to salmon-colored, entire and concolorous on the edges; spores globose or subglobose, smooth, rose-colored, 6–7 μ; stipe tapering upward from a subbulbous base, smooth, glabrous, shining, pallid or pale-brownish, hollow, 7 cm. long, 5–8 mm. thick.

Type collected in soil in a wet thicket at Chalmette, New Orleans, Louisiana, September 8, 1908, *F. S. Earle 130* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

29. **Pluteus griseibrunneus** Murrill, sp. nov.

Pileus rather thin and fragile, conic-campanulate, strongly umbonate in dried specimens, solitary, 4–5 cm. broad; surface dry, grayish-brown, darker on the disk, somewhat rimose but not striate, fibrillose; lamellae free, broad, ventricose, crowded, white to salmon-colored, entire and concolorous on the edges; spores ovoid, smooth, rose-colored, 6–7 × 3.5 μ; stipe cylindric, equal, whitish, solid, minutely pubescent, 6 cm. long, 5 mm. thick.

Type collected on a dead log in wet woods at City Park, New Orleans, Louisiana, September 6, 1908, *F. S. Earle 71* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

30. **Pluteus avellaneus** Murrill, sp. nov.

Pileus convex, not fully expanding, not umbonate, regular, gregarious, 3.5 cm. broad; surface smooth, glabrous, hygrophanous, avellaneous, paler on the disk, margin striate, concolorous, entire; lamellae free, broad, subventricose, crowded, white to salmon-colored, whitish-pruinose on the edges; spores broadly ellipsoid, smooth, rose-colored, uniguttulate, 7–8.5 × 6 μ; stipe equal, smooth, glabrous, white, 5 cm. long, 4 mm. thick.

Type collected on dead wood in woods at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 91* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

31. **Pluteus deliquescens** Murrill, sp. nov.

Pileus soft, watery, very fragile, deliquescent, broadly campanulate, 3.5 cm. broad; surface hygrophanous, glabrous, brownish, margin striate; lamellae free, broad, pallid or subconcolorous, watery; spores subglobose to broadly ellipsoid, smooth, rose-colored, 7 × 5–6 μ; stipe cylindric, glabrous, pallid, hollow, firm, 5 cm. long, 2–3 mm. thick.

Type collected on rotten wood in a swamp at New Orleans, Louisiana, September 5, 1908, *F. S. Earle 53* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of New Orleans, Louisiana.

32. **Pluteus tortus** C. G. Lloyd, Myc. Notes 15. 1899.

Pileus convex to plane, umbonate, regular, cespitose, 3 cm. broad; surface conspicuously rugulose, brownish, darker on the umbo, margin concolorous, entire, striate; lamellae free, crowded, salmon-colored; stipe equal, curved and much twisted, smooth, shining, glabrous, white, solid, 5 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Ohio.
DISTRIBUTION: Known only from the type locality.

33. **Pluteus fuliginosus** Murrill, sp. nov.

Pileus conic to campanulate, not expanding, umbonate, regular, solitary, 3–4 cm. broad; surface smooth, uniformly fuliginous, clothed with white hairs, margin concolorous, entire, striate; lamellae free, ventricose, crowded, white to salmon-colored, entire and concolorous on the edges; spores subglobose, smooth, rose-colored, uniguttulate, 7–8 μ; stipe tapering upward, smooth, glabrous, white or pale-yellowish, slightly squamulose and tinged with pale-avellaneous near the base, 6 cm. long, 4–7 mm. thick.

Type collected on a decayed white pine stump at Lake Placid, Adirondack Mountains, New York, July 17–29, 1912, *W. A. & Edna L. Murrill 118* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

34. **Pluteus fibrillosus** Murrill, sp. nov.

Pileus thin but rather firm, convex to expanded, not umbonate, solitary, 3 cm. broad; surface moist, faintly striate, uniformly dark-fuscous, pale-fuliginous in dried specimens, minutely innate-fibrillose, margin entire to undulate or slightly lobed, faintly striate; lamellae free, rather broad, ventricose, crowded, white to salmon-colored, entire and concolorous on the edges; spores globose or slightly subglobose, smooth, rose-colored, 6–7 μ; stipe tapering upward, smooth, glabrous, white, solid, 7 cm. long, 4–6 mm. thick.

Type collected in soil in a wet thicket at Chalmette, New Orleans, Louisiana, September 8, 1908, *F. S. Earle 129* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality.

35. **Pluteus tomentosulus** Peck, Ann. Rep. N. Y. State Mus. **38**: 136. 1885.

Agaricus tomentosulus Peck, Ann. Rep. N. Y. State Mus. **32**: 27. 1880.
Pleurotus tomentosulus Sacc. Syll. Fung. **9**: 46. 1891. (By mistake.)

Pileus thin, convex or nearly plane, subumbonate, 5–7.5 cm. broad; surface minutely villose or squamulose-tomentose, white; lamellae rather broad, rounded behind, crowded, white, becoming flesh-colored; spores subglobose or broadly ellipsoid, usually uninucleate, 6–8 × 6 μ; stipe equal, solid, striate, slightly pubescent or subtomentose, white, 5–12.5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On decaying wood and prostrate trunks.
DISTRIBUTION: New York and Connecticut.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 133;* ed. 2. *f. 136;* Conn. State Geol. & Nat. Hist. Surv. **15**: *pl. 26*.

36. **Pluteus cervinus** (Schaeff.) Quél. Champ. Jura Vosg. 81. 1872.

Agaricus cervinus Schaeff. Fung. Bavar. **4**: Ind. 6. 1774.

Pileus rather thin and fragile, bell-shaped to expanded, 6–10 cm. or more broad; surface slightly viscid at times, smooth or slightly radiate-fibrillose, avellaneous to subfuliginous, rarely

white, sometimes streaked, darker on the disk; context white, almost tasteless; lamellae free, broad, white when young, becoming salmon-pink; spores broadly ellipsoid, smooth, flesh-colored, 6–8 × 5–6 μ; cystidia ellipsoid, stout, thick-walled, hyaline, forked at the tip; stipe equal or enlarged at the base, white at the apex, more like the pileus below, usually glabrous, nearly solid, brittle, 8–15 cm. long, 7–12 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: In open woods about stumps and on decaying wood of various kinds.
DISTRIBUTION: Throughout temperate and tropical North America; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **54**: *pl. 74, f. 9–19;* Atk. Stud. Am. Fungi ed. 1. *f. 132;* ed. 2. *f. 135;* Boud. Ic. Myc. 1: *pl. 87* (as *Agaricus patricius);* Cooke, Brit. Fungi *pl. 301, 565 (302), 302 (303), 357 (304), 303 (305);* Gill. Champ. Fr. *pl. 260, 547 (548);* Lucand, Champ. Fr. *pl. 105, 187;* N. Marshall, Mushr. Book *pl. 25;* Mycologia 1: *pl. 3, f. 2;* Pat. Tab. Fung. 1: *f. 335;* Schaeff. Fung. Bavar. *pl. 10;* Sow. Engl. Fungi *pl. 108.*

37. **Pluteus grandis** Peck, Bull. N. Y. State Mus. 105: 27. 1906.

Pileus fleshy, firm, convex, with the margin sometimes curved upward, about 10 cm. broad; surface silky-fibrillose, white or whitish, margin thin; context white, the taste farinaceous; lamellae thin, crowded, free, denticulate on the edges, whitish, becoming flesh-colored; spores subglobose, angular, uninucleate, 7.5 μ; stipe rather long, equal, firm, solid, silky-fibrillose, white, 10 cm. long, 2 cm. thick.

TYPE LOCALITY: Bolton Landing, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.

38. **Pluteus californicus** McClatchie, Proc. So. Calif. Acad. 1: 384. 1897.

Pileus convex to expanded, 2–3 mm. thick, 2–4 cm. broad; surface hygrophanous, rugose-veined, greenish-gray, becoming cinnamon-gray, margin thin, short-striate; lamellae crowded, thin, elliptic, 3–5 mm. broad, grayish-white to flesh-gray; spores globose or broadly ovoid, irregular, 5–8 μ; cystidia numerous, fusoid, capitate; stipe substraight, shining, pale-yellowish-gray, hollow, fibrous, 2–6 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Pasadena, California.
HABITAT: On the ground among decayed leaves and branches.
DISTRIBUTION: Southern California.

39. **Pluteus latifolius** Murrill, sp. nov.

Pileus thick, convex to nearly plane, regular, not umbonate, solitary, 4 cm. broad; surface dry, tomentose, smooth, avellaneous-isabelline, the disk radiate-rugose with fuliginous lines, margin entire, concolorous, not projecting; lamellae free, very broad and ventricose, crowded, fragile, whitish to salmon-colored; spores broadly ellipsoid, smooth, rose-colored, 7 × 5–6 μ; stipe equal, rather slender, firm, hollow, densely short-tomentose, concolorous, 5 cm. long, 5 mm. thick.

Type collected on dead alder in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 510* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

40. **Pluteus washingtonensis** Murrill, sp. nov.

Pileus rather thick, convex, regular, solitary, 3 cm. broad; surface moist, glabrous, radiate-striate, avellaneous-umbrinous, slightly darker on the disk, at least in dried specimens, margin entire, concolorous; lamellae free, crowded, subventricose, white to salmon-colored, entire and concolorous on the edges; spores oblong-ellipsoid, smooth, rose-colored, apiculate, uniguttulate, copious, 7–8.5 × 5–6 μ; stipe equal or slightly tapering upward, smooth, glabrous, white, 5–7 cm. long, 2–4 mm. thick.

Type collected on decayed wood in woods at Seattle, Washington, October 20–November 1, 1911, *W. A. Murrill 348* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vicinity of Seattle, Washington.

41. **Pluteus fulvibadius** Murrill, sp. nov.

Pileus conic to campanulate, not fully expanding, umbonate, regular, solitary, 5 cm. broad, 3 cm. high; surface glabrous, hygrophanous, fulvous-badious, castaneous on the umbo, distinctly rugose-radiate or reticulate-rugose, margin concolorous, not striate, splitting with age; lamellae just free, crowded, ventricose, not very broad, citrinous to salmon-colored, entire and white on the edges; spores subglobose, smooth, rose-colored, uniguttulate, 7 μ; stipe long and thick, fleshy, hollow, glabrous, longitudinally striate, subequal, citrinous, 9 cm. long, about 1 cm. thick.

Type collected on the ground in woods at Glen Brook, Oregon, November 7, 1911, *W. A. Murrill 760* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

42. **Pluteus magnus** McClatchie, Proc. So. Calif. Acad. 1: 383. 1897.

Pileus 8–12 mm. thick at the center, very thin toward the margin, convex to expanded, cespitose, 10–20 cm. broad; surface fibrillose, glabrous or breaking into scales, white or smoky; lamellae subattached, crowded, white to pale-salmon-colored, 10–22 mm. wide; spores irregular, globose or oblong, 5–8 × 5 μ; cystidia 60–80 μ, the apex obtuse or acute; stipe flexuous, subequal, fibrillose, solid, white or subochraceous or brownish from the fibrils, 10–20 cm. long, 18–22 mm. thick.

TYPE LOCALITY: Los Angeles, California.
HABITAT: On decayed wood.
DISTRIBUTION: Known only from the type locality.

43. **Pluteus tephrostictus** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 669. 1887.

Agaricus tephrostictus Berk. & Curt. Jour. Linn. Soc. **10**: 289. 1868.

Pileus umbonate, 12 mm. broad; surface white, covered with soft, black, glandular hairs; lamellae white to pale-flesh-colored; spores globose; stipe white, slightly glandular, enlarged at the base, 12 mm. long, 2 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On the under side of old logs.
DISTRIBUTION: Cuba.

44. **Pluteus alborubellus** (Mont.) Pat. Bull. Soc. Myc. Fr. **15**: 196. 1899.

Agaricus alborubellus Mont. Ann. Sci. Nat. IV. **1**: 96. 1854.

Pileus very thin, membranous, expanded, subumbonate, 5–10 mm. broad; surface glabrous, uniformly reddish-white, margin striatulate, becoming much split; lamellae several times inserted, free, convex-attenuate at the ends, concolorous; spores subglobose, 6–8 × 5–6 μ; stipe equal, the base dilated to a disk, glabrous, concolorous, fistulose, 1.5–2 cm. long, 1 mm. thick.

TYPE LOCALITY: French Guiana.
HABITAT: On dead branches of *Bignonia* or other trees in woods.
DISTRIBUTION: Guadeloupe; also in South America.

45. **Pluteus laetifrons** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 677. 1887.

Agaricus laetifrons Berk. & Curt. Jour. Linn. Soc. **10**: 289. 1868.

Pileus very small, conic to plane, 3–12 mm. broad; surface glabrous, orange-red, margin radiate-striate; lamellae broad, yellow; spores globose; stipe slender, glabrous, red, slightly enlarged at the base, 2.5 cm. long, 1 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On decayed wood.
DISTRIBUTION: Cuba.

46. **Pluteus aethalus** (Berk. & Curt.) Sacc. Syll. Fung. 5: 674. 1887.

Agaricus aethalus Berk. & Curt. Jour. Linn. Soc. **10**: 289. 1868.

Pileus very small, depressed around the umbo, 8 mm. broad; surface pulverulent, spadiceous; lamellae broad; spores globose, 5 μ; stipe slender, concolorous, 12 mm. long, 6 mm. thick.

TYPE LOCALITY: Cuba.
HABITAT: On decayed wood.
DISTRIBUTION: Mexico and Cuba.

47. **Pluteus myceniformis** Murrill, sp. nov.

Pileus thin, fragile, convex, not expanding, regular, solitary, 3 cm. broad; surface glabrous, smooth or slightly striate, nearly white, yellowish on the disk, margin white, incurved, entire to slightly lacerate; lamellae broad, subdistant, very thin and fragile, white to pale-salmon-colored, entire and concolorous on the edges; spores subglobose to broadly ellipsoid, smooth, uniguttulate, rose-colored, 8–10 × 7–8 μ; stipe short, subequal, smooth, glabrous, white, 2–3 cm. long, 2–3 mm. thick.

Type collected on a dead log at Cinchona, Jamaica, 1,500 m. elevation, December 25, 1908, *W. A. & Edna L. Murrill 504* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

48. **Pluteus compressipes** Murrill, sp. nov.

Pileus convex to subexpanded, not umbonate, gregarious, 3–4 cm. broad and 1 cm. thick; surface glabrous, striate, rosy-isabelline, somewhat darker on the disk, margin entire, concolorous; lamellae free, of medium distance, broad, white to salmon-colored; spores globose to subglobose, smooth, rose-colored, 6–8 μ; stipe slender, tapering upward, compressed, smooth, glabrous, white, attached by a white mat of mycelium, 3 cm. long, 2–3 mm. thick.

Type collected on dead wood in Castleton Gardens, Jamaica, December 15, 1908, *W. A. & Edna L. Murrill 118* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

49. **Pluteus pulverulentus** Murrill, sp. nov.

Pileus thin, convex to expanded, obtuse, solitary, 2–3 cm. broad; surface dark-brown, glabrous and rugose-reticulate on the disk, brown-pulverulent on the margin, not striate; lamellae free, subcrowded, broad, ventricose, white to salmon-colored, entire and concolorous on the edges; spores globose, minute, smooth, rose-colored, 5 μ; stipe cylindric, glabrous, subconcolorous, 2 cm. long, 2 mm. thick.

Type collected on the ground in shade at The Bower, St. George's, Grenada, West Indies, September 10, 1905, *W. E. Broadway* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locaiity.

50. **Pluteus multistriatus** Murrill, Mycologia **3**: 277. 1911.

Pileus convex, depressed about the umbo, somewhat clustered, 3 cm. broad; surface fuliginous, subglabrous, with numerous shallow furrows, or striations, extending from the umbo to the margin; lamellae free, close, broad, pallid; spores globose or subglobose, smooth, uninuculeate, 5–7 μ; cystidia none; stipe slender, equal, glabrous, white, 4 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Jalapa, Vera Cruz, Mexico.
HABITAT: On a decayed railway tie.
DISTRIBUTION: Known only from the type locality.

51. **Pluteus jamaicensis** Murrill, Mycologia **3**: 278. 1911.

Pileus thin, expanded, obtuse, subcespitose, 2–3 cm. broad; surface dark-brown, paler with age, rugose, crustose-areolate, not striate; lamellae free, subcrowded, broad, ventricose, white to pink; spores globose, smooth, 4 μ; cystidia none; stipe white, enlarged above and below, solid, glabrous expect at the base, which is conspicuously whitish-tomentose, 2 cm. long, 2 mm. thick.

TYPE LOCALITY: Castleton Gardens, Jamaica.
HABITAT: On rotten wood.
DISTRIBUTION: Known only from the type locality.

52. **Pluteus nitens** Pat. Bull. Soc. Myc. Fr. **14**: 53. 1898.

Pileus thin, convex, 2–3 cm. broad; surface somewhat floccose, fuscous-brown or olivaceous, margin striate; lamellae remote, crowded, ventricose; spores 6–8 μ; stipe slender, enlarged at the base, shining, white, stuffed, 1–3 cm. long.

TYPE LOCALITY: Motzorongo, Vera Cruz, Mexico.
HABITAT: On dead wood.
DISTRIBUTION: Mexico and Cuba.

53. **Pluteus Harrisii** Murrill, Mycologia **3**: 277. 1911.

Pileus convex to depressed, obtuse, 2–3 cm. broad; surface avellaneous-fuliginous to dark-chestnut, glabrous, subrugose, finely asperate and striate; lamellae free, subcrowded, slightly ventricose, white to salmon-colored; spores broadly ellipsoid to subglobose, regular, smooth, uninucleate, about 7–8 × 5–6 μ; cystidia none; stipe cylindric, solid, white, glabrous, shining, 3–4 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Troy and Tyre, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Jamaica and Cuba.

54. **Pluteus spinulosus** Murrill, sp. nov.

Pileus firm, convex, solitary, 4–5 cm. broad; surface glabrous, subviscid, avellaneous, darker on the disk, margin not striate; lamellae free, crowded, narrow, white to salmon-colored, brownish and pruinose on the edges; spores ellipsoid, smooth, rose-colored, 8 × 6 μ; cystidia bottle-shaped, acuminate or needle pointed with scattered, lateral spinules, 75 × 17 μ; stipe cylindric, enlarged at the base, glabrous, concolorous, solid, 4–5 cm. long, 3–4 mm. thick.

Type collected in British Honduras, 1906, *Morton E. Peck* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

55. **Pluteus reticulatus** Murrill, Mycologia **3**: 276. 1911.

Pileus plane to depressed, umbonate, solitary, 5 cm. broad, about 1 cm. thick; surface velvety, dark-isabelline with pale-fuliginous reticulations, which are more pronounced on the umbrinous umbo; lamellae free, ventricose, salmon-colored; spores subglobose, smooth, uninucleate, 4–5 × 3.5–4 μ; cystidia fusiform, pointed, not divided at the apex, rather abundant, about 60 × 17 μ; stipe cylindric, subequal, glabrous, stramineous with a pale-melleous tint, 4 cm. long, 5 mm. thick.

TYPE LOCALITY: Moneague, Jamaica.
HABITAT: On dead wood.
DISTRIBUTION: Known only from the type locality.

56. **Pluteus rimosus** Murrill, Mycologia **3**: 276. 1911.

Pileus conic to convex, 4–5 cm. broad, 2–3 cm. high, gregarious; surface fuliginous when young, becoming umbrinous, smooth, glabrous, at length radiate-rimose and showing white in the cracks; lamellae free, close, rather narrow, white, becoming roseous from the spores; spores regular, globose, smooth, uninucleate, 4 μ; cystidia none; stipe white, glabrous, much enlarged below, crooked, 4.5 cm. long, scarcely 1 cm. thick above, 2 cm. thick at the base.

TYPE LOCALITY: Port Antonio, Jamaica.
HABITAT: In a field near the shore on soil mixed with decayed wood.
DISTRIBUTION: Known only from the type locality.

57. **Pluteus Earlei** Murrill, Mycologia **3**: 276. 1911.

Pileus rather thick, expanded, somewhat gibbous, 10 cm. broad; surface dry, densely floccose, uniformly pale-yellow, margin even, not striate; lamellae free, crowded, broad, becoming dull-pinkish; spores regular, ovoid, smooth, uninucleate, dark-pink when fresh, 7–8 × 6 μ; cystidia none; stipe slightly tapering upward, solid, white, glabrous, 8 cm. long, 1 cm. thick.

TYPE LOCALITY: Guanajay, Cuba.
HABITAT: On a dead log.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Pluteus alveolatus (Cragin) Sacc. Syll. Fung. **5**: 679. 1887. (*Agaricus alveolatus* Cragin, Bull. Washburn Lab. **1**: 20. 1884.) See *Lentinula reticeps*, Mycologia **7**: 291. 1915. A number of good specimens are to be found at Albany.

Pluteus chrysophlebius (Berk. & Rav.) Sacc. Syll. Fung. **5**: 678. 1887. (*Agaricus chrysophlebius* Berk. & Rav.; Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 289. 1859.) Described from specimens collected on dead logs in South Carolina. Specimens examined at Kew while working tropical material were found to be near *P. laetifrons*, but with longer stipe, etc. The description is almost identical with that of *Pluteus admirabilis* and the two species are probably not distinct.

Pluteus Curtisii (Berk.) Sacc. Syll. Fung. **5**: 675. 1887. (*Agaricus Curtisii* Berk. Jour. Bot. & Kew Misc. **1**: 98. 1849.) Described from specimens collected in South Carolina and reported from other southeastern states. When examined at Kew, I saw no difference between this species and *P. cervinus* and they are probably not distinct.

Pluteus nanus (Pers.) Quél. Champ. Jura Vosg. 82. 1872. (*Agaricus nanus* Pers. Syn. Fung. 357. 1801.) A number of different specimens are called *P. nanus* at Albany, but none of them appears to be the true *P. nanus* of Europe, according to authentic material from Bresadola and Romell.

Pluteus stercorarius Peck, Bull. Torrey Club **22**: 488. 1895. This species belongs in the genus *Locellina*.

Pluteus umbrosus (Pers.) Quél. Ench. Fung. 55. 1886. (*Agaricus umbrosus* Pers. Ic. Descr. Fung. 8. 1798.) This species, according to the best material available, appears to be only a dark form of *P. cervinus*. The American specimens certainly do not warrant specific distinction.

60. **CHAMAEOTA** (W. G. Smith) Earle, Bull. N. Y. Bot. Gard. **5**: 446. 1909.

Agaricus § *Annularia* Schulzer, Verh. Zool.-Bot. Ges. Wien **16**: 49. 1866.
Agaricus § *Chamaeota* W. G. Smith. Clavis Agar. 15. 1870.
Annularia (Schulzer) Gill. Champ. Fr. 389. 1876. Not *Annularius* Roussel, 1806.

Pileus fleshy, putrescent, easily separating from the stipe, solitary or gregarious; lamellae free; spores pink or salmon-colored; stipe central, fleshy; veil persistent, forming an annulus.

Type species, *Agaricus xanthogrammus* Cesati.

Pileus white or yellow; species occurring in temperate North America. 1. *C. mammillata.*
Pileus dark-red; species occurring in tropical North America. 2. *C. Broadwayi.*

1. **Chamaeota mammillata** (Longyear) Murrill.

Annularia mammillata Longyear, Rep. Mich. Acad. Sci. **3**: 59. 1902.
Annularia sphaerospora Peck, Bull. Torrey Club **33**: 216. 1906.

Pileus fleshy but thin, conic or subcampanulate to expanded, distinctly umbonate, solitary or cespitose, 2–6 cm. broad; surface silky-fibrillose, yellow, fading to whitish either wholly or in part, the umbo yellow or brownish; lamellae free, crowded, ventricose, thin, whitish or cream-colored, becoming flesh-colored; spores globose or subglobose, smooth, salmon-colored, 5–6 μ; cystidia spindle-shaped, 50 × 20 μ; stipe equal or slightly tapering upward, fibrous, substriate, whitish, solid, 3–8 cm. long, 2–8 mm. thick; annulus white, medial or basal, persistent.

TYPE LOCALITY: Greenville, Michigan.
HABITAT: On dead logs in woods.
DISTRIBUTION: Michigan.
ILLUSTRATION: Rep. Mich. Acad. Sci. **3**: *pl. 1, f. 4.*

2. **Chamaeota Broadwayi** Murrill, sp. nov.

Pileus firm, convex to expanded, 3–6 cm. broad; surface densely floccose-tomentose, at length subareolate, dark-red, becoming reddish-brown on drying, margin even, not striate; lamellae free, crowded, rather narrow, reddish-brown in dried specimens; spores ellipsoid,

reddish, 10 × 8 μ; stipe cylindric, minutely tomentose, firm, 4–6 cm. long, 3–5 mm. thick; annulus ample, concolorous, subapical, soon deciduous.

Type collected on the ground at St. George's, Grenada, West Indies, 1905, *W. E. Broadway* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Vicinity of St. George's, Grenada, West Indies.

DOUBTFUL SPECIES

Annularia Fenzlii (Schulzer) Gill. Champ. Fr. 390. 1876. (*Agaricus Fenzlii* Schulzer, Verh. Zool.-Bot. Ges. Wien **16**: 49. 1866.) Reported from Kentucky and Michigan. A specimen so named at Albany collected in Detroit in August, 1904, by R. H. Stevens, is much larger than the type of *Annularia sphaerospora*, collected in the same locality, and does not show the annulus so plainly.

61. VOLVARIOPSIS Murrill, Mycologia **3**: 280. 1911.

Volvarius Roussel, Fl: Calvados ed. 2. 59. 1806. Not *Volvaria* DC. 1805.
Agaricus § *Volvaria* Fries, Syst. Myc. **1**: 277. 1821.
Volvaria Gill. Champ. Fr. **1**: 385. 1878. Not *Volvaria* DC. 1805.
Pseudofarinaceus Batt. (Fung. Hist. 29, hyponym. 1755); Earle, Bull. N. Y. Bot. Gard. **5**: 449. 1909. Not *Pseudofarinaceus* O. Kuntze. 1891.

Pileus fleshy, putrescent, readily separating from the stipe, solitary or gregarious; lamellae free; spores pink or salmon-colored; stipe central, fleshy; veil absent; volva present.

Type species, *Agaricus volvaceus* Bull.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA

Species growing parasitically on other agarics. 1. *V. Loweiana.*
Species growing on decayed wood, manure, or soil.
  Pileus 1–4 cm. broad.
    Pileus uniformly white.
      Stipe 2.5 cm. long.
        Pileus and stipe glabrous or minutely silky. 2. *V. pusilla.*
        Pileus and stipe pubescent or squamulose. 3. *V. pubescentipes.*
      Stipe 5–7 cm. long.
        Pileus dry, squamulose; volva elongate. 4. *V. perplexa.*
        Pileus moist, not squamulose; volva shallow, cup-shaped. 5. *V. umbonata.*
    Pileus white, slightly yellowish on the disk; volva very large, light-brown. 6. *V. Earleae.*
    Pileus gray, avellaneous, or murinous.
      Stipe 0.5–1.5 cm. long. 7. *V. concinna.*
      Stipe 3–4 cm. long.
        Pileus 2 cm. broad; spores globose. 8. *V. villosovolva.*
        Pileus 3–4 cm. broad; spores ellipsoid. 9. *V. submyochroa.*
  Pileus 6–10 cm. broad.
    Species growing on decayed wood.
      Pileus glabrous, viscid. 10. *V. Peckii.*
      Pileus densely fibrillose, not viscid. 11. *V. bombycina.*
    Species growing on manure or soil.
      Pileus white; stipe 7 cm. long. 12. *V. emendatior.*
      Pileus white or whitish, darker on the disk; stipe 10–20 cm. long. 13. *V. speciosa.*
      Pileus fulvous-ochraceous, very viscid. 14. *V. viscosa.*
      Pileus dark-brown or fuliginous.
        Pileus glutinous. 15. *V. gloiocephala.*
        Pileus dry.
          Pileus glabrous; stipe 4–5 cm. long. 16. *V. alabamensis.*
          Pileus appressed-fibrillose; stipe 8–14 cm. long. 17. *V. volvacea.*

II. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Pileus white or whitish, sometimes darker at the center.
  Species growing on the ground. 18. *V. Earlei.*
  Species growing on decayed wood.
    Pileus 5 cm. broad; stipe 3–5 mm. thick. 19. *V. jamaicensis.*
    Pileus 6–10 cm. broad; stipe 8–16 mm. thick 11. *V. bombycina.*
Pileus dark-brown or fuliginous.
  Stipe 7 mm. thick. 20. *V. cubensis.*
  Stipe 10–15 mm. thick. 21. *V. Bakeri.*

1. Volvariopsis Loweiana (Berk.) Murrill.

Agaricus Loweiana Berk. in Smith, Engl. Fl. 5²: 104. 1836.
Volvaria Loweiana Gill. Champ. Fr. 386. 1876.

Pileus fleshy, thin, ovoid or globose to campanulate and expanded, broadly umbonate, subcespitose, 2.5–5 cm. broad; surface dry, white, villose-silky, not striate, fimbriate on the

involute margin; context white or tinged with pink; lamellae free, subventricose, white to salmon-colored, whitish-floccose on the edges; spores ovoid or ellipsoid, smooth, rose-colored, 6–7 × 4–5 μ; cystidia flask-shaped, 45–70 × 8–15 μ; stipe fibrillose, white, solid, slightly bulbous, equal or attenuate upward, about 5 cm. long, 4–6 mm. thick; volva white, lobed, with short, free margin.

TYPE LOCALITY: England.
HABITAT: Parasitic on *Clitocybe*.
DISTRIBUTION: Canada and the northern United States; also in Europe.
ILLUSTRATIONS: Berk. Outl. Brit. Fungol. *pl. 7, f. 2;* Cooke, Brit. Fungi *pl. 295;* Gill. Champ. Fr. *pl. 252 (712);* Mycologia **8**: *pl. 177, f. A, B.*
EXSICCATI: Barth. Fungi Columb. *3509.*

2. **Volvariopsis pusilla** (Pers.) Murrill.

Amanita pusilla Pers. Obs. Myc. **2**: 36. 1799.
Volvaria parvula Quél. Champ. Jura Vosg. 81. 1872.
Volvaria pusilla Schroet. Krypt-Fl. Schles. **3**[1]: 621. 1889.
Volvaria striatula Peck, Bull. Torrey Club **22**: 487. 1895.

Pileus campanulate to plane, umbonate, 1.5 cm. broad; surface viscid, soon becoming dry, fibrillose, white, margin striate; lamellae free, rather crowded, narrow, white to flesh-colored; spores broadly ellipsoid, smooth, 5–7 × 4–5 μ; stipe equal, short, glabrous, white, 1.5–2.5 cm. long, 1–2 mm. thick; volva white, short, usually deeply cleft into four or more lobes.

TYPE LOCALITY: Europe.
HABITAT: In cultivated grounds, usually among weeds, rarely in woods.
DISTRIBUTION: United States east of the Rocky Mountains; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. 1: *pl. 86;* Bull. Herb. Fr. *pl. 330;* Cooke, Brit. Fungi *pl. 300b;* Gill. Champ. Fr. *pl. 256 (713);* Hard, Mushr. *f. 195;* C. G. Lloyd, Myc. Notes *f. 1;* Pat. Tab. Fung. **1**: *f. 332;* Pers. Obs. Myc. **2**: *pl. 4, f. 4.*
EXSICCATI: Rav. Fungi Car. **1**: *3.*

3. **Volvariopsis pubescentipes** (Peck) Murrill.

Agaricus pubescentipes Peck, Ann. Rep. N. Y. State Mus. **29**: 39. 1878.
Volvaria pubipes Sacc. Syll. Fung. **5**: 658. 1887.

Pileus convex, about 1.2–2.5 cm. broad; surface dry, white, clothed with minute, hairy squamules or reflexed fibrils, margin fimbriate; lamellae crowded, free, white, becoming flesh-colored, sometimes minutely serrate or eroded on the edges; spores ellipsoid, usually uninucleate, 6–7 μ; stipe slender, subequal, pubescent, about 2.5 cm. long and 2 mm. thick; volva subappressed, white.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On the ground in borders of deciduous woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **29**: *pl. 1, f. 1–3.*

4. **Volvariopsis perplexa** (Peck) Murrill.

Volvaria perplexa Peck, Bull. N. Y. State Mus. 167: 49. 1913.

Pileus thin, convex or nearly plane, umbonate, slightly depressed around the umbo, solitary, 1.2–2 cm. broad; surface dry, adorned with minute, erect, hairy squamules, white, margin even, fimbriate; lamellae crowded, free, about 2 mm. broad in the widest part, pale-pink; spores ellipsoid, 6–8 × 4–5 μ; stipe long, slender, glabrous, shining, solid or stuffed, slightly pruinose at the apex, thickened at the base, white, brownish where bruised, 5–7 cm. long, 2–3 mm. thick; volva closely sheathing, elongate.

TYPE LOCALITY: Minnesota.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.

5. **Volvariopsis umbonata** (Peck) Murrill.

Volvaria umbonata Peck, Bull. Torrey Club **26**: 64. 1899.

Pileus thin, campanulate, becoming convex or nearly plane, prominently umbonate, 2–3 cm. broad; surface slightly viscid when moist, silky when dry, white, margin distinctly striate;

lamellae rather crowded, free, not extending beyond the margin of the pileus, pale-flesh-colored; spores broadly ellipsoid, uninucleate, variable in size, 5–7 × 4–5 μ; stipe equal or slightly thickened at the base, glabrous, solid, white, 5–6 cm. long, about 4 mm. thick; volva ruptured, membranous, white or grayish, persistent, irregularly split or lobed on the margin and forming a shallow cup at the base of the stipe.

TYPE LOCALITY: Ohio.
HABITAT: On lawns and grassy places.
DISTRIBUTION: Minnesota, Ohio, and Missouri.
ILLUSTRATION: Hard, Mushr. *f. 194.*

6. **Volvariopsis Earleae** Murrill, sp. nov.

Pileus campanulate, not expanding, solitary, 2.5 cm. broad; surface white, slightly yellowish on the disk, finely fibrillose, dry, not striate, margin entire, concolorous, densely clothed with fine white hairs; lamellae free, crowded, rather narrow, white to salmon-colored; spores ellipsoid, smooth, rose-colored, 7–8 × 3.5–4 μ; stipe cylindric, equal, smooth, white, solid, 2.5 cm. long, 5 mm. thick; volva very large, thin, membranous, persistent, light-brown, 3 cm. high, 1.5 cm. broad.

Type collected on a dead spot on a living oak trunk at Biloxi, Mississippi, September 2, 1904, *Esther S. Earle 60* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

7. **Volvariopsis concinna** (Clements) Murrill.

Volvaria concinna Clements, Bot. Surv. Neb. 5: 9. 1901.

Pileus submembranous, expanded, not at all or only slightly umbonate, 0.5–1.5 cm. broad; surface smooth, pale-avellaneous; lamellae free, rose-colored; spores ovoid-ellipsoid, granular or guttate, smooth, rosy, 8–11 × 5–7 μ; stipe graceful, concolorous, 0.5–1.5 cm. long, 1–2 mm. thick; volva minute, strictly appressed, limb obsolescent.

TYPE LOCALITY: Nemaha River, Humboldt, Nebraska.
HABITAT: On moist, shaded ground and on flooded banks.
DISTRIBUTION: Nebraska and Kansas.

8. **Volvariopsis villosovolva** (C. G. Lloyd) Murrill.

Volvaria villosovolva C. G. Lloyd, Myc. Notes 31. 1899.

Pileus convex, gregarious, 2 cm. broad; surface dry, silky-fibrillose, somewhat rimose, even, gray; lamellae free, remote; spores globose, 5 μ; stipe pure-white, solid, slightly tapering upward, 4 cm. long, 4 mm. thick; volva globose, densely covered with long, white, mycelioid hairs, which disappear in the dried specimens.

TYPE LOCALITY: Ohio.
HABITAT: Fallen logs and rich earth in damp ravines in woods.
DISTRIBUTION: Ohio and Virginia.
ILLUSTRATION: C. G. Lloyd, Myc. Notes *f. 2.*

9. **Volvariopsis submyochroa** (Clements) Murrill.

Volvaria submyochroa Clements, Bot. Surv. Neb. 5: 10. 1901.

Pileus convex, almost plane, scarcely umbonate, subcarnose, 3–4 cm. broad; surface silky, shining, the umbo densely covered with larger silky fibrils, becoming innate toward the strongly striate margin, pale-avellaneous-murinous; lamellae free, remote, subcrowded, ventricose, at first flesh-colored, becoming isabelline; spores ellipsoid, smooth, uninucleate, 6–7 × 4 μ; stipe carnose, equal, solid, white, shining, farinose at the apex, 3–4 cm. long, 5 mm. thick; volva small, hirsute, 2–3-fid, concolorous.

TYPE LOCALITY: University campus, Lincoln, Nebraska.
HABITAT: On wet earth in a basement.
DISTRIBUTION: Known only from the type locality.

10. **Volvariopsis Peckii** (Atk.) Murrill.

Volvaria Peckii Atk.; Peck, Ann. Rep. N. Y. State Mus. 48: 109 (11). 1897.

Pileus thin, convex, about 7.5 cm. broad; surface glabrous, viscid, whitish, margin finely striate; lamellae rather crowded, thin, pale-flesh-colored; spores subellipsoid, even, usually

uninucleate, 7.5–10 × 5–6 μ; stipe glabrous, solid, whitish, slightly tapering upward, 7.5–8.5 cm. long, 6–8 mm. thick; volva loose, membranous, well-developed.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On decaying wood.
DISTRIBUTION: Known only from the type locality.

11. **Volvariopsis bombycina** (Schaeff.) Murrill, Mycologia **3**: 281. 1911.

Agaricus bombycinus Schaeff. Fung. Bavar. **4**: Ind. 42. 1774.
Volvaria bombycina Quél. Champ. Jura Vosg. 80. 1872.

Pileus fleshy, campanulate or very convex, solitary, 6–10 cm. broad; surface densely silky-fibrillose, white or whitish; context white, firm but tender, the taste mild; lamellae broad, crowded, free, whitish, becoming bright-pink; spores flesh-colored or pink, ellipsoid, 8–10 × 5–6 μ; stipe straight or curved, solid, silky-fibrillose, white, 5–10 cm. long, 8–16 mm. thick; volva large, persistent, white or whitish, appearing like a cup or loose wrapper at the base of the stipe.

TYPE LOCALITY: Bavaria.
HABITAT: Growing from dead places in living maple, beech, and other deciduous trees, and also on fallen trunks.
DISTRIBUTION: New England to Cuba and west to Nebraska; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi ed. 1. *f. 134;* ed. 2. *f. 137;* Bull. N. Y. State Mus. 157: *pl. 125;* Cooke, Brit. Fungi. *pl. 293;* Gill. Champ. Fr. *pl. 253 (710);* Hard, Mushr. *f. 191–193;* McIlv. Am. Fungi *pl. 59;* Pat. Tab. Fung. 1: *f. 330;* Schaeff. Fung. Bavar. *pl. 98.*

12. **Volvariopsis emendatior** (Berk. & Curt.) Murrill.

Agaricus emendatior Berk. & Curt. Ann. Mag. Nat. Hist. III. **4**: 289. 1859.
Volvaria emendatior Sacc. Syll. Fung. **14**: 125. 1899.

Pileus plane, umbonate, 7–8 cm. broad; surface smooth, glabrous, white, margin thin, striate; context having a disagreeable odor; lamellae free, remote, ventricose, rounded behind, extending beyond the margin, white to salmon-colored; spores cymbiform, 12–13 μ long; stipe enlarged above and below, slightly fibrillose, solid, 7 cm. long, 8 mm. thick; volva marginate, forming only a short rim.

TYPE LOCALITY: New England.
HABITAT: In rich garden soil.
DISTRIBUTION: New England and South Carolina.

13. **Volvariopsis speciosa** (Fries) Murrill.

Amanita speciosa Fries, Obs. Myc. **2**: 1. 1818.
Volvaria speciosa Gill. Champ. Fr. 388. 1876.

Pileus campanulate to expanded, umbonate or obtuse, 6–10 cm. broad; surface glabrous, viscid, white or whitish, darker on the disk; lamellae free, salmon-colored; spores ellipsoid, smooth, rose-colored, 12–18 × 8–10 μ; cystidia sack-shaped, 40–80 μ long, reaching 24 μ broad; stipe attenuate, subbulbous, lax, villose, white, solid, 10–20 cm. long, 1–2 cm. thick; volva large, closely adhering, the edge free and irregularly torn.

TYPE LOCALITY: Europe.
HABITAT: On manure or cultivated ground.
DISTRIBUTION: Throughout temperate North America; also in Europe.
ILLUSTRATIONS: Boud. Ic. Myc. 1: *pl. 84;* Cooke, Brit. Fungi *pl. 297;* Gill. Champ. Fr. *pl. 255 (714);* Pat. Tab. Fung. **2**: *f. 640;* Ricken, Blatterp. Deutschl. *pl. 70, f. 3.*

14. **Volvariopsis viscosa** (Clements) Murrill.

Volvaria viscosa Clements, Bot. Surv. Neb. **2**: 37. 1893.

Pileus fleshy, campanulate-convex, 6 cm. broad; surface smooth, very viscous, fulvous-ochraceous; lamellae touching, brown; spores ovoid-ellipsoid, dilutely flesh-colored, with a large locule, 8 × 5 μ; stipe prominently bulbous, nearly equal above, solid, smooth, ochraceous, 6 cm. long, 1.5 cm. thick at the base, 0.5 cm. thick at the apex; volva ample, lobed, concolorous.

TYPE LOCALITY: Warbonnet Cañon, Nebraska.
HABITAT: On horse dung.
DISTRIBUTION: Known only from the type locality.

15. **Volvariopsis gloiocephala** (DC.) Murrill.

Agaricus gloiocephalus DC. Fl. Fr. **6**: 52. 1815.
Volvaria gloiocephala Gill. Champ. Fr. 387. 1876.

Pileus campanulate to expanded, umbonate, fleshy, 8 cm. broad; surface glabrous, glutinous, fuliginous, margin striate; context very poisonous according to Lettellier; lamellae free, reddish; spores 19 × 9 μ; stipe glabrous, fuscous or fulvous, solid, 16 cm. or more long, 1–2.5 cm. thick; volva circumscissile, coarctate.

TYPE LOCALITY: France.
HABITAT: On manure or manured ground.
DISTRIBUTION: North Carolina, California, and certain other parts of temperate North America; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 298;* Saunders, Smith, & Bennett, Myc. Illust. *pl. 33, f. 2.*

16. **Volvariopsis alabamensis** Murrill, sp. nov.

Pileus thick, firm, convex, not umbonate, solitary, 6–7 cm. broad; surface smooth, dry, glabrous with a silky sheen, uniformly dark-brown, margin entire, concolorous, not striate; lamellae free, broad, ventricose, crowded, white to salmon-colored, somewhat undulate on the edges; spores irregularly ovoid, rose-colored, 16–18 × 7–9 μ; stipe short, enlarged below, smooth, glabrous, white, solid, 4–5 cm. long, 5–10 mm. thick; volva white, somewhat fibrillose, ample, closely adhering below, with free, lacerate margin, a portion being carried up on the top of the pileus.

Type collected in soil in the Experiment Station garden, Auburn, Alabama, March 10, 1898, *F. S. Earle* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

17. **Volvariopsis volvacea** (Bull.) Murrill.

Agaricus volvaceus Bull. Herb. Fr. *pl. 262.* 1785.
Agaricus virgatus Pers. Tent. Disp. Fung. 18. 1797.
Amanita virgata Pers. Tent. Disp. Fung. 66. 1797.
Volvaria virgata Quél. Champ. Jura Vosg. 332. 1873.
Volvaria volvacea Quél. Ench. Fung. 54. 1886.

Pileus fleshy, soft, campanulate to expanded, obtuse, 6–8 cm. broad; surface dry, fuliginous, covered with appressed fibrils, black when dry; lamellae free, flesh-colored; spores ellipsoid, smooth, rose-colored, 6–8 × 3.5–4 μ; stipe subequal, smooth, glabrous, whitish, solid, 8–14 cm. long, 1–2 cm. thick; volva thick, membranous, persistent, the margin irregular.

TYPE LOCALITY: France.
HABITAT: On the ground, usually in hothouses or cellars.
DISTRIBUTION: Eastern United States; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 262;* Cooke, Brit. Fungi *pl. 294;* C. G. Lloyd, Volvae *f. 9;* Pat. Tab. Fung. *f. 331;* Sow. Engl. Fungi *pl. 1.*

18. **Volvariopsis Earlei** Murrill, Mycologia **3**: 282. 1911.

Volvaria Earlei Murrill, Mycologia **4**: 332. 1912.

Pileus fleshy, rather thin, becoming expanded, solitary or gregarious, 4–5 cm. broad; surface glabrous, rarely with thin volval patches, white, discolored with age, margin even or slightly striate; lamellae free, subcrowded, of medium breadth, ventricose, white to pink; spores ellipsoid, smooth, both nucleate and granular, about 11 × 7 μ; stipe subcylindric, slightly tapering upward, glabrous, pure-white, solid, 5–10 cm. long, 5–8 mm. thick; volva delicate, sheathing, very short, 5–8 mm. in length.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a banana field.
DISTRIBUTION: Santiago de las Vegas, Cuba.

19. **Volvariopsis jamaicensis** Murrill, Mycologia **3**: 281. 1911.

Volvaria jamaicensis Murrill, Mycologia **4**: 332. 1912.

Pileus thin, convex to nearly plane, gregarious, 5 cm. broad; surface ashy-white, avellaneous at the center, radiate-striate, slightly granular, margin thin, entire; lamellae free, close, narrow, white to salmon-colored; spores narrowly ellipsoid, smooth, uninucleate, about

COMPLETED VOLUME

9: i–iv, 1–542. (Agaricales:) Polyporaceae (pars), Boletaceae, Agaricaceae (pars). Complete in 7 parts.

PARTS OF VOLUMES PREVIOUSLY PUBLISHED

3[1]: 1–88. Hypocreales: Nectriaceae, Hypocreaceae. Fimetariales: Chaetomiaceae, Fimetariaceae.

7[1]: 1–82. Ustilaginales: Ustilaginaceae, Tilletiaceae.

7[2]: 83–160. Uredinales: Coleosporiaceae, Uredinaceae, Aecidiaceae (pars).

7[3]: 161–268. (Uredinales:) Aecidiaceae (pars).

10[1]: 1–76. (Agaricales:) Agaricaceae (pars).

15[1]: 1–75. Sphagnales: Sphagnaceae. Andreaeales: Andreaeaceae. Bryales: Archidiaceae, Bruchiaceae, Ditrichaceae, Bryoxyphiaceae, Seligeriaceae.

15[2]: 77–166. (Bryales:) Dicranaceae, Leucobryaceae.

16[1]: 1–88. Ophioglossales: Ophioglossaceae. Marattiales: Marattiaceae. Filicales: Osmundaceae, Ceratopteridaceae, Schizaeaceae, Gleicheniaceae, Cyatheaceae (pars).

17[1]: 1–98. Pandanales: Typhaceae, Sparganiaceae. Naiadales: Zannichelliaceae, Zosteraceae, Cymodoceaceae, Naiadaceae, Lilaeaceae. Alismales: Scheuchzeriaceae, Alismaceae, Butomaceae. Hydrocharitales: Elodeaceae, Hydrocharitaceae. Poales: Poaceae (pars).

17[2]: 99–196. (Poales:) Poaceae (pars).

17[3]: 197–288. (Poales:) Poaceae (pars).

21[1]: 1–93. Chenopodiales: Chenopodiaceae.

22[1]: 1–80. Rosales: Podostemonaceae, Crassulaceae, Penthoraceae, Parnassiaceae.

22[2]: 81–192. (Rosales:) Saxifragaceae, Hydrangeaceae, Cunoniaceae, Iteaceae, Pterostemonaceae, Hamamelidaceae, Altingiaceae, Phyllonomaceae.

22[3]: 193–292. (Rosales:) Grossulariaceae, Platanaceae, Crossosomataceae, Connaraceae, Calycanthaceae, Rosaceae (pars).

22[4]: 293–388. (Rosales:) Rosaceae (pars).

22[5]: 389–480. (Rosales:) Rosaceae (pars).

25[1]: 1–88. Geraniales: Geraniaceae, Oxalidaceae, Erythroxylaceae, Linaceae.

25[2]: 89–171. (Geraniales:) Tropaeolaceae, Balsaminaceae, Limnanthaceae, Koeberliniaceae, Zygophyllaceae, Malpighiaceae.

25[3]: 173–261. (Geraniales:) Rutaceae, Surianaceae, Simaroubaceae, Burseraceae.

29[1]: 1–102. Ericales: Clethraceae, Monotropaceae, Lennoaceae, Pyrolaceae, Ericaceae.

34[1]: 1–80. (Carduales:) Carduaceae (pars).

34[2]: 81–180. (Carduales:) Carduaceae (pars).

34[3]: 181–288. (Carduales:) Carduaceae (pars).

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